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EFFECT OF FEDERAL TAXES ON GROWING ENTERPRISES

EFFECT OF FEDERAL TAXES ON GROWING ENTERPRISES

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BOSTON

1945

HARVARD UNIVERSITY

GRADUATE SCHOOL OF BUSINESS ADMINISTRATION

GEORGE F. BAKER FOUNDATION

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FOREWORD

In this report on the *Effect of Federal Taxes on Growing Enterprises,* Professor Butters and Mr. Lintner present the final results of a pioneer research project. This volume supersedes the interim reports on the Lockheed Aircraft, Polaroid, and Lithomat Corporations previously published. The concept of this study originated during an informal discussion of some of the tax problems of the aircraft industry, and the costs of the project have been defrayed from funds contributed to the Harvard Business School by members of the aircraft industry for research on problems of significance to that industry.

Although of especial significance to a young and rapidly developing industry such as the aircraft industry, this volume has a far wider amplification than any single industry. The problems discussed include some of the most basic questions of economics, business, and public policy which now need to be faced in this country.

Professor Butters and Mr. Lintner present detailed analyses of several growing enterprises in various industries to illustrate different aspects of the problem. These illustrative companies were selected from the large number of such companies interviewed during the preparation of the study. The authors also present evidence drawn from numerous published sources. Thus their conclusions have a broad base.

Although the study is primarily concerned with the effect of federal taxation on growing enterprises, it also contributes to a better understanding of the problems of a particularly significant type of small business by illustrating through its case records some of the conditions which are encountered in starting and developing a new business.

As the authors state, furthermore, their conclusions, if sound, "emphasize the significance of the methods by which the savings of society are channeled to the places where these savings are needed to finance business expansion and other new private investment." The implications of this study are broad.

MELVIN T. COPELAND
Director of Research

PREFACE

This book could not have been prepared without the cooperation of many businessmen and government officials who have generously contributed their time and in many instances have supplied confidential data. In particular, we wish to acknowledge our gratitude to the managements of the companies whose experience is reported in detail in this study.

Many helpful suggestions have been made by our colleagues during the preparation of this book. Dr. Melvin T. Copeland, Director of Research, has followed the study closely at all stages. Professors C. C. Abbott, R. L. Masson, D. T. Smith, and S. F. Teele have read the final manuscript and offered suggestions for its improvement. A special debt is owed to Professors Lynn L. Bollinger and Tom Lilley for many hours of consultation and of friendly criticism. We also wish to express our appreciation to Miss Ruth Norton for careful editing of the manuscript and to Miss Virginia Jenness for able research assistance.

In view of other uses to which the material in Chapters V to VIII may be put, it seems desirable to state that the basic research and the underlying memoranda from which these chapters were written were prepared independently by Mr. Lintner.

It goes without saying that we bear full responsibility for the study and its conclusions and that we have had complete freedom in the formulation of these conclusions.

J. KEITH BUTTERS
JOHN LINTNER

Soldiers Field
Boston 63, Massachusetts
June, 1945

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CHAPTER I

Introduction and Conclusions

IMPORTANCE OF PROBLEM

A HIGH level of employment and national income can be achieved by private enterprise only if there is widespread formation of new firms and a rapid growth of existing firms. Some firms and industries are always dying. Expansion in other sections of the economy must absorb the labor and capital released by declining industries and, in addition, must make possible the productive use of new savings and labor constantly coming on the market. If this expansion does not take place in the private economy, the only alternatives are an enlargement of the activities of government or mass unemployment.

Traditionally, in this country large firms and industries have grown rapidly from very small beginnings. In recent decades, however, dramatic expansions from small beginnings have become increasingly rare. Instead, the great corporate research laboratory with its highly specialized scientists has become the symbol of industrial innovations.

Various explanations are offered for the decline in the role of small, independent enterprises in business expansion. Among them are the disappearance of the geographic frontier, the increased amounts of capital required to start successful enterprises in many industries, the restrictive policies of some large, established corporations, and high taxes.

Some of these trends may be so fundamental that they cannot be significantly altered by legislative policy. Yet the continued formation and growth of small, independent enterprises is generally recognized to be essential to the maintenance of a healthy industrial competitive structure — some would even say to the continued preservation of political stability and personal freedom. The very fact that the activities of government and of very large corporations dominate a substantial segment of the modern economy makes it all the more important that every reasonable step be taken to remove unnecessary impediments to the growth of new enterprises in the postwar economy.

It is therefore of great importance to determine the effect of the prospective postwar Federal tax structure on the growth of small, independent companies. Will this tax structure constitute a serious impediment to growing enterprises? If so, how and to what extent? What types of taxes bear most heavily on small companies with outstanding growth possibilities? Within the limits set by postwar revenue requirements, what can be done to alleviate the repressive effect of high taxes on growing enterprises? This book attempts to answer, at least in part, these critically important questions.

PRINCIPAL CONCLUSIONS

In highly condensed form the principal findings of the study may be summarized as follows:

1. In the development-of-the-idea stage of a new enterprise taxes are seldom of dominant importance.

2. As a business develops beyond the "idea" stage to the point at which production appears feasible, tax considerations become progressively more important.

3. At this stage, and beyond, high corporate taxes are typically much more repressive in their effects than are high personal taxes — at least so long as capital gains continue to receive very favorable treatment.

4. High corporate taxes restrict the growth of small companies:

   (a). By greatly reducing the attractiveness of risky expansions to the managements of small companies;

   (b). By curtailing the amount of capital available from retained earnings to finance such expansions; and

   (c). By making the acquisition of outside capital on satisfactory terms much more difficult.

5. In each of these respects the restrictive effect of high personal taxes appears to be much less severe:

(a). The effect of personal taxes on management incentives is much less direct;

(b). Except for unincorporated enterprises personal taxes do not reduce retained earnings; and

(c). On balance, high personal taxes may not even divert outside capital away from highly venturesome enterprises.

6. Retained earnings are an especially critical source of funds for the expansion of small enterprises:

(a). The owners of small companies frequently place great importance on the maintenance of a strong control position and of their personal freedom of action. To the extent that they do so, they will be reluctant to undertake expansions which must be financed by outside capital.

(b). Many small companies — even companies with promising growth prospects — find it extremely difficult or impossible to raise outside capital on reasonably favorable terms.

(c). Hence, for both of these reasons, many expansions by small companies will, in fact, be undertaken only if funds are available from retained earnings to finance them.

7. In almost every respect high taxes are less repressive on large, established corporations than on small, growing firms.

(a). High taxes reduce the profit expectancy of new expansions by large companies much less severely than they restrict similar expansions undertaken by small, independent companies.

(b). Large, established companies have substantial amounts of funds coming available from their noncash expenses in addition to whatever earnings they may be able to retain after taxes. These funds may be used to finance the introduction of new products and technical innovations.

(c). Finally, large, established companies generally can acquire new capital on much more favorable terms than can small companies. In addition to their ability to float common stock with relative ease, they can usually issue preferred stocks or bonds — alternatives available to small companies only on a limited scale, on more expensive terms, and usually at great risk to the common stockholders.

8. Thus, unless special adjustments are made to relieve the burden of a flat-rate corporate tax on small companies, such a tax would tend to promote an increased degree of industrial concentration in addition to restricting the growth of small, independent companies.

9. It would be possible substantially to relieve the tax burden on most small, growing companies without greatly diminishing Federal revenues. This study clearly emphasizes the need for such relief. But it makes no attempt to examine the many problems which would arise in formulating the precise character of this relief.

10. The financial problems confronting small firms are particularly acute in times of depression and market pessimism — at such times it is practically impossible for most small companies to acquire new equity capital on acceptable terms. Indeed, perhaps the surest way to improve the position of small firms would be to follow an economic policy that would promote a high level of economic activity. The indirect effects of general prosperity would be far more powerful than any specific measures which could be taken to break down the barriers between small companies and the capital market.

11. As a final point, existing imperfections in the capital market and the general unwillingness of individual savers to assume the risks of ownership emphasize the possibility that venture capital may be scarce at a time when there is general oversavings in the economy. Failure to recognize that oversavings and shortages of venture capital are not mutually incompatible has led to many statements of doubtful validity by both proponents and opponents of the oversavings thesis.

METHOD OF PROCEDURE

One of the weaknesses of many studies by economists of the effect of taxes on business expansion is that little attention is given to the problems of business expansion as they confront the businessman. In particular, the human aspects of the problem — the attitudes and motivations of key individuals — are seldom given the weight which they deserve.

This book attempts to avoid the danger of treating businessmen and investors as automatons acting in a highly simplified world and motivated solely by considerations of monetary gain. It does so by discussing the problem of the Effect of Federal Taxes on Growing Enterprises largely in terms of specific examples chosen from the experience of actual companies. Indeed, Part II presents in detail the experience of five companies with outstanding growth records; namely, Clarkson Manufacturing Company, Continental Machines, Inc., Lithomat Corporation, Lockheed Aircraft Corporation, and Polaroid Corporation. The analysis of the rest of the book draws largely on the factual data of Part II. It is hoped that by constantly subjecting the analytical portions of the book to the test of actual experience the pitfall of irrelevancy — the curse of much economic analysis — can be avoided.

But this technique, while it helps avoid the dangers of oversimplification and irrelevancy, opens up other equally serious dangers. Have the five specific companies presented in Part II been picked at random or have they been selected to prove a point? Even if these five companies do represent an unbiased sample, what significance can be attached to the experience of five companies in a universe of many thousands? To put it bluntly, what — if anything — do these cases actually prove? These questions are penetrating and highly relevant; they cannot be lightly brushed aside.

In reply, the basis of selection of these companies and the significance which is attached to their experience should be made absolutely clear. No pretense is made that these cases represent a random sample. On the contrary, they have been deliberately selected because they possess certain characteristics. First, and most important, they are small, independent enterprises that have achieved outstanding records of growth by successfully introducing new products or technical innovations. Secondly, they illustrate a wide variety of tax effects — and have been deliberately chosen with this aim in view. Finally, the choice of these particular companies has been influenced by the mundane fact that their managements have been willing to release the necessary data for publication.

A sample so selected contains obvious biases. Taken by itself, it undoubtedly gives an exaggerated impression of the ease with which business can expand in spite of high taxes. It contains no examples of firms that have failed, perhaps as a result of taxes. It may, however, place undue emphasis on tax considerations because of the conscious effort to select companies whose experience is interesting from a tax point of view. This list of biases could undoubtedly be lengthened; the preceding points are mentioned merely to drive home the point that the sample is not intended to be representative in a statistical sense.

What then is the experience of these companies intended to *prove?* Briefly and simply, *nothing.* The function of the specific company discussions is to *illustrate* points and *not* to prove them. By carefully analyzing the points illustrated by these companies in an effort to determine the extent to which they are generally valid, however, the authors believe that significant conclusions may be drawn. In many instances in the subsequent discussion these conclusions rest on much more extensive observations than those reported in detail; officers of at least 100 companies have discussed various phases of their tax problems with the authors during the past two years. In other instances, the conclusions of the study are based on positive proofs of two kinds: first, demonstrations of propositions such as that on pages 34-35; and, secondly, statistical demonstrations of conclusions where adequate data are available. Every effort is made to distinguish statements for which definite proof is available from those which represent opinions and judgments on the part of the authors.

SCOPE OF STUDY

In order to avoid possible misunderstandings the scope of the study should be clearly delimited.

First, the study is *not* designed to appraise the effects of wartime taxation on business expansion. This problem is not discussed except incidentally in places clearly designated. In particular, and this point cannot be too strongly emphasized, *no judgment one way or the other is passed on the fairness of the impact of wartime taxes on the specific companies discussed.* Rather, the objective of the study is to ascertain the effect of prospective *postwar* tax rates on the *postwar* formation and growth of business enterprises.

Secondly, the analysis is largely restricted to the *Effect of Federal Taxes on Growing Enterprises.* Indeed, even this title is somewhat too broad. The discussion is primarily limited to the *economic* effect of income taxes; by and large, considerations of tax equity and administrative feasibility receive little emphasis. Similarly, the effect of other taxes — estate taxes, for instance — is not considered.

Moreover, no consideration is given the economic effects of any change in government expenditures which may result from additional tax revenues and no comparison is made of the effects of high income taxes and of alternative sources of revenue.

All this adds up to the statement that the book by itself does not provide an adequate basis for recommendations for sweeping revisions of the Federal tax structure. Rather, it is a research report on a limited, but critically important, aspect of the economic effects of high Federal taxes. As such, it is hoped that the book will be useful to those charged with the responsibility for formulating national tax policies.

INCIDENCE OF THE CORPORATE INCOME TAX

At numerous vital points the following analysis hinges on a specific assumption as to the incidence of the corporate income tax. Hence, it seems wise to stress this assumption at the outset. Throughout the book *the full amount of the corporate income tax is assumed to be borne by the corporation and its stockholders.*

This assumption may exaggerate the restrictive effects of a corporate tax on the growth of individual business enterprises. Business managements may, in fact, be able to pass part of a tax on corporate incomes on to consumers or back to wage earners by appropriate adjustments in price and wage policies. Or they may be able to avoid part of the tax entirely by increasing deductible expenses such as salaries, advertising, and research outlays. It is apparent that some of these actions are being taken today with corporate taxes at wartime levels.

In a broad sense, however, the assumption that the corporate tax is actually borne by the company and its stockholders states the case for this tax most favorably. To the extent that a tax on business profits is passed on to consumers in the form of higher prices or back to wage earners in the form of lower wages, it becomes in effect a sales or payroll tax and shares the injustices and harmful economic effects of these taxes. Indeed, the highly uneven and capricious manner in which a corporate tax would be shifted probably would make it considerably more harmful and unjust than a well-constructed retail sales tax. The burden of a corporate tax, if shifted, would be pyramided much as would a crude turnover tax applied indiscriminately to transactions at all levels.

Most of the arguments for a high corporate tax in peacetime assume that the burden of the tax is borne by stockholders. For instance, the tax is often defended as a "progressive" tax, although admittedly one that is very crude in its application. It is also defended as a tax that will reduce consumer purchasing power relatively less than other taxes. Both of these arguments lose whatever cogency they may possess to the extent that the tax is actually passed on to consumers or back to wage earners.

If the corporate tax is partly shifted, the following analysis overstates the direct effects of the tax on growing enterprises. But the analysis is still valid for that part of the tax which is not shifted. Moreover, in so far as the *relative* effects of a corporate tax on small and large companies is concerned, the conclusions would be invalidated or weakened only if small companies in general can shift the tax to a greater degree than large companies — a contingency which seems highly unlikely.

DEFINITION OF SMALL BUSINESS

Throughout the book comparisons are made as to the relative effect of taxes on small companies and large companies. It has, however, been impossible to formulate a precise definition of these terms which could be followed throughout the study. The terms *small* and *large* of necessity have different meanings in different contexts. A $25 million company may be small in competition with a billion dollar company; a company with a capital of $500,000 may be large in comparison with smaller competitors. A small steel mill may be larger than a large textile manufacturer. In most instances, however, the important consideration is not the precise boundary that divides small companies from large companies, but rather the comparative positions of *smaller* and *larger* companies. Moreover, in the following analysis the sense in which the concept of *smallness* is used will be clear from its context. As a practical matter, in most lines of production and distribution any definition of *small* includes the great majority of firms.

PART I

INTRODUCTORY STATEMENT

In brief, taxes may affect the formation and growth of business enterprises in two ways. First, they may dull the incentive needed to induce promoters and entrepreneurs to undertake new developments. Secondly, they may curtail the supply of capital required to finance the formation of a new enterprise or the expansion of an existing enterprise. Both adequate incentives and an adequate supply of capital are essential to a successful business development.

Part I of this book discusses the effect of income and excess profits taxes on business incentives and on the supply of capital available to finance business growth. Chapters II through IV discuss the problem primarily from the point of view of the individual enterprise. Chapters V through IX attempt to round out the analysis by surveying broad, over-all aspects of the problem.

CHAPTER II

Effect of Taxes on Formation of New Enterprises

SUMMARY OF CONCLUSIONS

1. Tax considerations seldom dominate decisions to organize small, independent enterprises.

2. In particular, taxes typically are given little conscious consideration by the individuals actually responsible for the organization of new enterprises.

3. Moreover, taxes generally appear to have relatively little effect on the decisions of outsiders to invest in new companies during the *very early stages* of their development. There is some evidence to indicate that outsiders usually are not interested in a new undertaking until a substantial amount of development work has been successfully completed.

4. At a later stage of development, however, the high individual surtax rates in combination with the very favorable treatment accorded to capital gains by the present tax law frequently act as a positive stimulant to investments in new enterprises which offer prospects of large capital gains.

5. In one respect, personal income taxes frequently have an important, though indirect, bearing on the formation and early progress of new enterprises. Income taxes restrict the amount of personal funds available to the prospective organizers of new businesses; they may thereby delay or prevent the organization of new enterprises.

EFFECT OF TAXES ON DECISIONS TO START NEW ENTERPRISES

The founders of small, independent enterprises seldom give detailed consideration to taxes in deciding whether to undertake their ventures. This conclusion holds almost without exception for the large number of such businessmen interviewed during the course of this investigation. Typically, the promoters of new enterprises do not coolly and dispassionately survey the courses of action available to them and, after careful study, choose the one that will yield the largest monetary return or provide the greatest economic security.

On the contrary, the critical decisions of the founders of new enterprises are likely to reflect emotional drives quite different from the narrow assumptions of "rational conduct" on which most economic analysis is based. By disposition, these men are usually aggressive, imaginative, venturesome, and confident of their ability to succeed. They usually have an "idea" in which they are intensely — sometimes almost religiously — interested and a fixed determination to develop that idea. They want to be their own bosses, and will start their own businesses even though the opportunities for profit, objectively considered, are not good. Given these attitudes, it is no wonder that they seldom give careful thought to taxes.

The above remarks do not imply that profits are unimportant in the minds of the promoters of new businesses. Quite the contrary, these businesses would seldom be started at all if their founders did not expect them to be profitable; with rare exceptions their very survival will depend on their ability to earn a profit. But the precise amount of this expected profit does not usually have an important bearing on the decision to undertake the business. Indeed, at the time a new business with a large potential growth is organized only the crudest estimates of its profit potentialities can be made. Thus, both the nature of the decision to start a new business and the character of the people who make this decision militate against a careful evaluation of the effect of taxes on new developments — unless of course tax rates approach confiscatory levels and are expected to remain at these levels.

These points may be illustrated by the experience of the specific companies discussed in Part II. Throughout the book these companies will be drawn on in this manner for illustrative material.

For instance, the principal interest of Edwin H. Land, founder of the Polaroid Corporation,[1] is in scientific research.

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[1] See Chapter XIV.

Mr. Land organized a business enterprise in preference to withdrawing to the shelter of a university research laboratory because of his conviction that his research could be carried on more effectively through a profitable business organization. The expectation of profits was essential to the formation of the enterprise. But the precise amount of these profits was of secondary importance to Mr. Land. Any discussion of the Polaroid Corporation which fails to take these facts into account would be highly misleading.

Similarly, high taxes have had little effect on the energy and effort which Leighton Wilkie has devoted to the management of Continental Machines and his other companies.[1] Mr. Wilkie has an intense emotional interest in his business activities much more deeply seated than the level of his dollar profits or his personal financial security. His primary interest is in the satisfaction of creating something new and in the power that goes with a successful business development. Indeed, Mr. Wilkie flatly states that he would continue to devote the same degree of care and effort to his business regardless of the level of tax rates.

To cite one more example, J. E. Gilligan paid little or no attention to taxes when he undertook the Lithomat development.[2] He saw a chance for a large profit in a field which vitally interested him and decided to gamble on it. Once the development was under way he was, to quote his own words, "determined to go through with it come hell or high water." Fortunately for scientific and economic progress, the kind of people who start new enterprises frequently take this attitude!

EFFECT OF TAXES ON FUNDS AVAILABLE TO FOUNDERS OF NEW ENTERPRISES

While taxes do not appear to have an important effect on the *desire* of individuals to start new enterprises, they may have a pronounced effect on their *ability* to do so. In their very early stages new businesses frequently have to depend primarily on the personal resources of the individuals directly interested in the enterprise. High personal income taxes, by curtailing the funds available to these individuals, may effectively prevent the organization of some important new businesses and delay the progress of others.

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[1] See Chapter XI. [2] See Chapter XII.

Until a new venture has developed to a point where it gives real indications of being potentially profitable, outside capital is likely to have little interest in it. Moreover, the promoter of a new venture frequently is uninterested in sharing his undertaking with outside capital in its very early stages. If he believes that he has an invention of great potential value, he will hesitate a long time before surrendering a large percentage ownership in it for a few hundred or a few thousand dollars. But, until the initial developmental stages have been successfully completed, he will seldom be able to raise more than this. If he does not have the personal resources to develop his idea, he may delay his venture until he accumulates the needed funds. He may even abandon his plans altogether and accept a position with someone else. Or he may attempt to carry out the development with inadequate resources and lose control of it through financial failure.

Two cases will be cited to illustrate these points. The first summarizes the difficulties encountered by two young physicists in raising the small amount of capital which they needed to start a new business. The second discusses the problems encountered by the founders of the Lithomat Corporation in securing the capital required for the development of its products. The Lithomat experience also illustrates the attitude of outside investors toward a new development in its early stages.

Baird Associates

Baird Associates was organized in 1936 in Cambridge, Massachusetts, by Walter S. Baird and John Sterner.[1] Messrs. Baird and Sterner were impressed by the need of government and university laboratories and commercial enterprises for various types of specialized scientific equipment, such as spectographs. They had had considerable experience in designing and constructing such equipment as part of their university research and in previous positions. Some of their equipment had come to the attention of a leading chemical company. This company offered to place an order for an X-ray unit if Messrs. Baird and Sterner would undertake its manufacture. This offer posed the question clearly: Should they go into business for themselves? They decided to accept the order of the chemical manufacturer and to try to start a business, although they had no funds to finance this endeavor.

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[1] The experience of Baird Associates is not reported in Part II since other details in the company's history are not of especial importance for this study.

As a first step toward financing the new business Mr. Sterner obtained a temporary position in a laboratory which paid him $1,650 a year. During the next 18 months or so both Mr. Sterner and Mr. Baird lived on this salary. They could manage in this manner because they were unmarried! Mr. Baird worked full time developing equipment and Mr. Sterner assisted him at night.

But they still needed capital to cover their business expenses. They were able to complete their first order with the aid of a $200 loan from a friend and, at the same time, to build a demonstration model for their own use. Subsequently, they managed to increase their borrowings from friends to $890.[1] They also managed to have several hundred dollars' work done for them on account. But they needed more funds.

For over a year various friends tried without success to locate additional capital for the enterprise. Repeated unsuccessful efforts were made to secure a bank loan. As a last resort, Mr. Baird turned to personal loan companies and succeeded in borrowing the additional funds which he needed at an interest rate of *3% a month*, an annual rate of about 40%. A series of such loans was arranged from time to time, the longest of which was for six months. The average amount owed to the finance company was about $250.

During the first eighteen months various small orders were completed and some technical consulting services were performed. Developmental work was done on a spectograph and on other scientific equipment such as X-ray cameras, evaporation equipment, filters, and densitometers. Finally, in July,

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[1] One friend originally took a partnership interest in the enterprise for $450, but he subsequently withdrew from the partnership and accepted a 6% note for his investment.

1937, over a year after work was commenced, the United States Bureau of Mines placed an order for a spectograph priced at $2,610. Before this order was secured, however, $800 of out-of-pocket expenses had been spent on this machine in addition to the time of Mr. Baird and Mr. Sterner.

The company was not able to obtain a bank loan until several months after this order was received. In October, 1937, however, a loan for about $1,500 for a period of six months was successfully negotiated, under a private agreement to assign the proceeds of the contract. Since that date the company has had a continuing record of successful expansion.

Query: What are the tax implications of this experience?

Answer: It is highly doubtful that Mr. Baird and Mr. Sterner could have started their firm if present personal income tax rates had been in effect in 1936 and 1937.

In these years Mr. Sterner actually had to pay only a negligible income tax on his $1,650 salary, certainly not more than $25. Under the present law, however, the tax on an unmarried person with no dependents and an income of $1,650 would be around $230. Moreover, it would be withheld currently from his paycheck. At prospective postwar rates, perhaps $100 to $150 will be levied on an income of this size.

If these additional amounts had been paid to the government in taxes, would Mr. Baird and Mr. Sterner have even tried to go ahead with their business? Could (or would) they have been able to curtail their personal living expenses even more drastically? Would they still have been able to borrow as much from their friends? (These friends would also have had to pay higher taxes. Moreover, the loan would have been more risky.) Would Mr. Baird and Mr. Sterner have been willing to borrow in larger amounts from personal loan companies at an interest rate of 3% a month? Indeed, could they have done so?

These questions need not and cannot be answered definitely. The point is clear. Messrs. Baird and Sterner were dependent almost exclusively on their personal resources and those of their friends for the capital with which they started their business. If personal income taxes had been higher, these resources would have been smaller. The task of inaugurating their business would have been made much more difficult and, at that time at least, perhaps impossible.

Lithomat Corporation

The early experience of the Lithomat Corporation, which has introduced a new process in the field of lithographic printing, provides additional insight into the problems encountered in raising outside capital in the very early stages of a new undertaking. The financial aspects of the early development of the company will first be summarized and then the effect of taxes on its progress will be examined.

The growth of the project, up to the period when it became profitable, may be divided into three stages (1) the origination and early development of the idea (1934-1939), (2) the later development to the point where commercial production appeared feasible (1939-1941), and (3) the initial period of unprofitable operations (1941-1943).

During the first stage the developmental work was done primarily by J. E. Gilligan, the originator of the idea. Indeed, Mr. Gilligan spent the better part of about five years working without compensation on the project. Financial assistance was acquired from a large manufacturer of office equipment during this period, but this manufacturer discontinued its support after contributing about $12,000 to the venture. Some technical assistance was also given by two other individuals, but they too dropped out at an early stage.

In 1939 semi-outside capital, for the first time, acquired an ownership interest in the development. This capital was raised from and through F. H. Nesmith, who had served the project as attorney for several years before 1939. Mr. Nesmith made a small contribution in 1939 and intended to limit his investment to this amount. But he, along with the other members of his group, found it necessary to invest additional funds at several times during the period 1939-1941 in order to keep the project alive. In all, the Nesmith group contributed about $30,000 during this period.

By July, 1941, the company was able to commence commercial production. The first genuinely outside capital had been acquired only a month before. During the two years ending June, 1941, a total of $60,000 was contributed by various individuals, the most important of whom were F. M. Roberts, acting as an individual and for the Venture Research Company, W. W. Garth, now President and Treasurer of Lithomat, and a prominent Boston attorney.

No profits were earned until mid-1943. Finally, however, after nearly 10 years of developmental work and a capital investment of over $100,000, highly profitable operations were achieved by mid-1943.

So much for a very brief sketch of the company's early development. What can be said concerning the effect of Federal taxes on the progress of the undertaking during these early years?

The areas in which taxes had little or no effect can be quickly disposed of. As previously indicated, taxes did not cause Mr. Gilligan to work less energetically on the development; likewise, there is no evidence to indicate that they dulled the incentive of others who participated actively in the project. Moreover, since the early years were unprofitable, no corporate income taxes were paid.

Taxes could have directly retarded the development in one other way — by restricting the amount of capital available to the enterprise. There is no evidence that *corporate* taxes had any appreciable effect on the attitude of investors toward the enterprise in its early stages. The individuals who invested in the development prior to 1943 made no effort to calculate carefully the effect of corporate taxes on the profit expectancy of their investments in the project. These individuals were primarily interested in large capital accumulations which would be exempt from the high surtaxes on ordinary income. Lithomat offered obvious possibilities of very large capital gains. In the early stages of the development, however, the element of uncertainty was so great that careful calculations of the size of the potential profits or the probability of earning them were out of the question. Hence, little consideration was given to the effect of corporate taxes on these unknown profit expectancies. Indeed, as a general proposition, corporate taxes do not seem likely to have an important bearing on decisions to participate in developments such as Lithomat in their early stages — unless, of course, corporate taxes are expected to continue at so high a level as to preclude the possibility of large gains.

This statement, however, by no means implies that corporate taxes will never have an important bearing on the willingness of individuals to make venturesome investments. On the contrary, the influence of corporate taxes will become increasingly greater as the area of uncertainty surrounding the investment is narrowed. But to pursue this thought further here would infringe on the subject matter of the following chapter.

In order to ascertain the effect of *personal* income taxes on the availability of outside capital to Lithomat, the investment policies of the key individuals and groups associated with the project must be known. In discussing the actions of these individuals it is important to note both the tax incentives to make or refrain from making venturesome investments, and the extent to which these incentives actually influenced the conduct of the key figures in the Lithomat development.

Mr. Nesmith. Mr. Nesmith served the development in its early stages as legal adviser. While the development was short of funds, he did not demand an immediate cash payment for his services. In addition to these services, Mr. Nesmith contributed substantial amounts in cash to the project and persuaded several of his friends to invest in it.

As previously noted, Mr. Nesmith originally intended to limit his cash investment to a small amount. But, he, along with other members of his group, found it necessary to invest additional funds in order to keep the project alive during the period 1939-1941.

In general, Mr. Nesmith was willing to risk savings from his current income in speculative investments, if favorable opportunities were available, and to some extent to commit his capital to such investments. The funds for his investment in Lithomat came largely from profits on other investments.

There is no evidence that changes in personal income tax rates would have reduced Mr. Nesmith's willingness to invest in the Lithomat development. Increased income taxes, however, would have curtailed the amount of funds available to Mr. Nesmith for investment in Lithomat.

The Boston Attorney. The Boston attorney, who purchased stock in 1941 and again in 1943, does not typically invest in speculative ventures; indeed, Lithomat is the only such investment he has ever made. In this instance he decided to risk a moderate proportion of his assets in what seemed to be a promising development in the hope of securing a large capital gain.

High individual surtaxes have not had a pronounced effect on the attorney's investment policies. He has, however, tended to shift his investment portfolio somewhat away from gilt-edged securities in an effort to maintain his income in spite of declining interest rates. He believes that this reaction has been typical of great numbers of investors.

Mr. Garth. Mr. Garth's investment policy is designed to obtain large capital gains. Since he had only a moderate amount of capital to start with, such gains would be possible only if he adopted a radical investment program. He believes that through careful investigation risks usually considered highly speculative can be minimized.

Mr. Garth has consistently followed such a program. For instance, a substantial percentage of his assets were invested in speculative ventures when he first purchased Lithomat stock. His practice has been to investigate small companies not widely known, to meet the management, and to invest in them if they appear very promising.

He is, however, only interested in promising companies in which the operating stage has been reached and not in good ideas as such. His view is that irrespective of how good an idea may be, the original investors in it seldom have more than one chance in ten of making a profit. The odds against the investor, he believes, are ordinarily prohibitive until the idea has been developed to the stage where actual production and marketing has begun. When Mr. Garth first invested in Lithomat he estimated that he had about a 50% chance of making a profit. If the company was successful, however, he expected his profit to be far larger than his potential loss in the event of failure.

Mr. Garth initially invested a moderate percentage of his assets in Lithomat. Later investments raised this percentage considerably. When he invested in Lithomat he had no expectation of having capital gains of sufficient magnitude from other investments against which losses on Lithomat could be offset.

Mr. Roberts. Mr. Roberts invested heavily in Lithomat in 1942 and was influential in guiding the policy of the Venture Research Company which also acquired capital for Lithomat. His views have therefore had an important effect on Lithomat's development.

Mr. Roberts does not systematically investigate the effect of taxes on each specific investment decision he makes. Nevertheless, the tax structure has had a pronounced effect on his investment policies. In general, the wide differential between the extremely high income tax rates on large incomes and the relatively low capital gains rates has caused Mr. Roberts to shift more and more into investments likely to yield capital gains rather than ordinary income. Mr. Roberts believes that the combined effect of high surtax rates and the declining yields on relatively riskless investments make such investments scarcely worth while for individuals with large incomes. His own investment portfolio is more heavily weighted with venture investments, he believes, than it would be if surtax rates were lower.

Mr. Roberts, like Mr. Garth, prefers to invest in little-known, unlisted enterprises in the belief that the chances for really large capital gains are much greater in such investments than in securities listed on exchanges. He also finds such investments emotionally satisfying.

Mr. Roberts, and for that matter the other important investors in Lithomat, regards his investment as a long-term commitment, since he recognizes that a period of several years is ordinarily required to develop a new enterprise to a stage of commercial profitability. In this connection it is interesting to note that most of the stock of Lithomat is still held by its original purchasers, although there has of course been some selling.

While Mr. Roberts frequently invests in new enterprises, he attempts to keep his investments well diversified. Consequently, he probably could have realized sufficient capital gains to cover losses on his investment in Lithomat, had he incurred such losses. The realization of such capital gains, however, might have been inconvenient.

The investment policy of both Mr. Roberts and Venture Research coincides with that of Mr. Garth in one very important respect. In general, Venture Research is not interested in new enterprises in their early stages. Venture Research is ordinarily willing to sponsor a new company *only after* the basic idea has been developed, the patents, if any, have been acquired, and actual manufacturing operations are about ready to begin. In other words, Venture Research will finance the plant and working capital requirements of a promising new firm, but generally will not finance the original development of the idea. The probability of failure and of a continued demand for more and more funds is so great on projects in the early developmental stage that Venture Research ordinarily is not interested in such projects.

Significance of the Investment Policies of Indiviaual Investors Interested in Lithomat

For Lithomat, at least, the following general statements may be made concerning the effect of personal income taxes on the availability of outside capital to the project.

1. In discussing the attitude of outside investors toward Lithomat, a clear distinction must be drawn between two stages in the company's growth: (a) the early development of the idea prior to the time when commercial production became feasible, and (b) the later period when production was under way but had not yet become profitable.

2. During the first stage the project had to depend primarily on the capital and services of individuals actively participating in it and on the friends of these individuals. Personal income taxes reduced somewhat the *amount* of savings which interested individuals had available for investment in the project but did not significantly affect their *willingness* to invest in it.

3. Outside capital became interested at about the time when commercial production began. The interest of outside capital at this particular point was no chance event; on the contrary, it reflected the deliberate investment policy of the individuals who supplied the greater part of Lithomat's outside capital at

this stage. These individuals, although predisposed to take heavy investment risks, customarily refused to invest in a new project at the development-of-the-idea stage. However attractive the idea might sound, they regarded the probability of failure or of the necessity of pouring in more and more funds to protect their original investment as too great to justify investments in developments short of the point at which commercial operations were possible.

EXHIBIT 1. MARGINAL TAX RATES APPLYING TO ORDINARY INCOME AND CAPITAL GAINS IN DIFFERENT INCOME BRACKETS*

Surtax Net Income	*Bracket Tax Rate on Ordinary Income*	*Bracket Tax Rate on Capital Gains*†
0–$ 2,000	23%	11.5%
$2,000–$ 4,000	25	12.5
$4,000–$ 6,000	29	14.5
$6,000–$ 8,000	33	16.5
$8,000–$ 10,000	37	18.5
$10,000–$ 12,000	41	20.5
$12,000–$ 14,000	46	23
$14,000–$ 16,000	50	25
$16,000–$ 18,000	53	25
$18,000–$ 20,000	56	25
$20,000–$ 22,000	59	25
$22,000–$ 26,000	62	25
$26,000–$ 32,000	65	25
$32,000–$ 38,000	68	25
$38,000–$ 44,000	72	25
$44,000–$ 50,000	75	25
$50,000–$ 60,000	78	25
$60,000–$ 70,000	81	25
$70,000–$ 80,000	84	25
$80,000–$ 90,000	87	25
$90,000–$100,000	90	25
$100,000–$150,000	92	25
$150,000–$200,000	93	25
Over $200,000	94	25

*Rates of Revenue Act of 1944.
†On assets held over six months.

4. At the second stage the personal income tax structure actually *increased* the availability of outside capital to Lithomat. The wide disparity between high individual income tax rates, especially on large incomes, and the relatively low rates on capital gains strongly stimulated the interest of venturesome

investors in the Lithomat development. Exhibit 1, which compares the marginal tax rate applying to ordinary income and to capital gains in different income brackets, shows the strength of this incentive. This incentive entirely outweighed in importance the fact that capital gains on the Lithomat project, if successful, would have been fully taxable, whereas capital losses might not have been fully deductible if the project had failed.

5. In many respects the experience of Lithomat, as summarized in the preceding four points, is typical of many new developments offering possibilities of large capital gains. For instance, the interest of individuals actively participating in such developments is usually so intense that personal income taxes are not likely to affect seriously their willingness to invest in the project. Similarly, in so far as the participation of outside capital is concerned, the tax incentive provided by the favorable treatment of capital gains is so pronounced that it must have far-reaching effects on the attitude of investors generally. It is less clear, however, that the sharp distinction between the first and second stages of the Lithomat development, so clearly present in the policies of Mr. Garth, Mr. Roberts, and Venture Research, is typical. A further investigation of this point would yield important information on the problems of financing new developments.

CHAPTER III

Effect of Taxes on Expansion of Small Companies: Management Incentives

SUMMARY OF CONCLUSIONS

1. Managements of small companies, in deciding whether to attempt new developments, frequently have to choose between two alternatives:

   (a) an expansion which offers potentialities of high profits, prestige, and future growth, but presents grave risks; and

   (b) continued operation as a small, moderately successful company.

2. It is of great social importance that small companies undertake such developments. The technological mutations which spring from them have a profound bearing on the rate of economic evolution, the vitality of the industrial competitive structure, and the level of employment and national income. A dollar spent on *developing* new products may be responsible for a hundred dollars spent in *producing* these and related products in subsequent years.

3. In general, a high corporate tax greatly reduces the profit expectancy of a major expansion undertaken by a small company both by reducing the probability of success and by lowering the percentage return to the business if the development is successful. By and large, with a high corporate tax the government shares in the profits resulting from such an expansion, but the company bears the entire loss.

4. It is proper to consider only the effects of the corporate tax if the management is primarily interested in the effects of its decisions on the business as such. On the other hand, if the management is primarily concerned with the personal status of its stockholders, the *combined* effects of both the corporate and personal taxes must be considered.

5. Under some conditions the combined effects of both taxes will be more repressive than that of corporate tax considered alone; under others it will be less so.

6. Nevertheless, these repressive effects, powerful as they appear on paper, may frequently be ignored in practice. The desire of the managements of many small businesses to expand is so intense that expansions probably would be attempted on a wide scale in spite of high taxes.

7. Moreover, these repressive effects could be mitigated to a degree by modifications in the tax structure other than rate reductions — as, for instance, a more rapid write-off of fixed assets and development expenses, elimination of the double taxation of corporate dividends, greater deductibility of capital losses, and the adoption of an averaging technique in computing personal income taxes.

8. The repressive effect of high corporate taxes is *much less* severe for large, established companies than for small companies. In general, a flat-rate corporate tax would reduce the profit expectancy of a new development to a large company only in proportion to the tax rate whereas the profit expectancy of a similar development undertaken by a small firm would be reduced *much more* than in proportion to the tax rate.

ILLUSTRATIVE CASE: LOCKHEED AIRCRAFT CORPORATION

The findings summarized above may be discussed more meaningfully in terms of an illustrative case than by a purely abstract analysis. The first commercial transport plane developed by the Lockheed Aircraft Corporation provides an interesting illustration.[1] This plane, called the Electra, represents a project offering potentialities of large profits but presenting grave risks to a small company with limited capital resources and with no income available from other activities. The authors believe that the essential aspects of the Electra case occur very frequently when fundamental innovations are undertaken by small firms. The following discussion of tax effects applies generally to all such cases. The Lockheed experience is referred to solely for illustrative purposes; it is not offered as proof.

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[1] See Chapter XIII for a more detailed discussion.

Early History

In mid-1933 the Lockheed Aircraft Corporation was a small, independently owned firm with total assets of less than $200,000 and a net working capital of slightly over $75,000. New management had taken over the previous year, purchasing the assets of the predecessor firm from a Federal receiver for $40,000. The predecessor had developed several planes far ahead of their time in structural and performance characteristics, and the Lockheed trade name was well known in the industry.

Alternatives Confronting Management

The new management was confronted almost immediately by the necessity of making a crucial decision upon which the future of the enterprise depended. The alternatives were (1) the safer but unprogressive policy of continuing to produce single-engine cabin planes, or (2) the more venturesome and risky policy of entering an entirely new field, namely, twin-engine transport planes.

The first alternative offered reasonably good prospects for continued operation over a number of years, perhaps indefinitely, as a profitable small firm. Eventually the company might have had to liquidate but probably not until it had paid its way. If this decision had been made, the company would have continued to produce and to improve its existing style of single-engine plane. But it would not have embarked in the new field, at least not until it had greatly strengthened its financial position.

The second alternative was to enter the new field of multimotor transport planes. For a company with Lockheed's resources, the risks of this alternative were very great. The major productive resources of the company would have to be committed to the development of the new model over a period of perhaps 18 months. At any stage after a substantial commitment had been made in the new model, failure or serious delay probably would have bankrupted the company.

Indeed, even if the development proceeded smoothly, large amounts of new capital would be required. New capital would be extremely costly to the existing owners. Sale of new stock would drastically dilute the percentage ownership of the old stockholders in the company. Moreover, the amounts needed were so large that the control of the existing management might be seriously challenged by purchasers of new stock. But the management would have to have a secure control position in order to be assured of its ability to embark on an unimpeded long-range program designed to place the company in a leading position in the industry.

Offsetting these disadvantages, however, were large potential rewards to the successful pioneer. The market appeared to be wide open for a small transport model, available at moderate initial costs and economical to operate. Prospects for large, profitable sales were excellent for the manufacturer who developed the leading plane in this area. Moreover, for Lockheed, entrance into the feeder-line and local transport field would be the entering wedge for a continuing expansion in the production of large, multi-motor planes.

In addition to the possibility of very large profits, the lure of a program that might eventually establish the company as one of the leading firms in the industry was a powerful enticement; by contrast, the safe course of continuing to improve established models would inevitably relegate the company to a position of secondary importance in the industry.[1]

The Management Decision

Confronted with these alternatives, *the decision was made to take the risk.* Specifically, the decision was to develop and produce a transport plane of high performance characteristics.

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[1] As the above remarks imply, the management of a firm frequently will not be primarily interested in earning the largest possible profits. For instance, the manager or engineer responsible for a new development may benefit substantially *even though* the development is not financially profitable. He will gain experience and know-how that may enhance his future earning power. In the early development of a new industry where technical skill is scarce and important, this factor may be especially significant. Moreover, the desire for business and social prestige frequently enters into decisions to expand. For these and other similar reasons, the urge to expand may often be so strong that expansions will be undertaken in cases where the profit prospects, considered by themselves, would not justify the investment. Cf. page 36.

This plane, to be known as the Lockheed *Electra*, was designed to fill the demand for a feeder-type model, ideal for the entire business of small airlines and for the local business of the large lines.

Effect of Development of Electra on Financial Condition of Lockheed

Although the development of the Electra proceeded smoothly, Lockheed's financial position was badly strained by the time it was completed. At the end of 1934, for instance, the ratio of its current assets to its current liabilities was only 1.2. Moreover, over 75% of its current assets consisted of inventories. *Cash and accounts receivable of $72,000 were held against current liabilities of $269,000.*

This deterioration occurred in spite of capital stock issues in 1933 and 1934 which brought in a total of about $365,000 of new capital, part of which was supplied by the original control group. The 1933 issue amounted to about $200,000, $160,000 of which was supplied by outsiders. As a result of this issue the ownership interest of the Lockheed control group dropped from 99% to about 45%.

It should be noted that the deterioration in the financial position of the enterprise during 1933 and 1934 cannot be ascribed in any degree to personal improvidence on the part of the management or stockholders. No dividends were paid in 1933 or 1934. Moreover, officers' salaries were very moderate. During 1933 and 1934, the president received $4,800; the treasurer, $3,600; and the secretary, $2,400. The full resources of the company were committed to its policy of expansion.

These data clearly demonstrate that Lockheed's financial position was seriously extended by the end of 1934. The company had staked its continued existence as a solvent enterprise on the successful development and marketing of the Electra model.

Effect of Taxes on Management Incentives to Undertake Major Expansions

Three possible cases are analyzed under this heading:

(1) The management may be principally concerned with the future of the business unit, as distinct from the personal

interests of its stockholders. In this event the management will consider only the effects of the corporate tax in arriving at its decision.

(2) The management may give close attention to the effect of its decisions on the personal position of individual stockholders. It will then take account of the combined bearing of personal and corporate taxes in arriving at important decisions.

(3) If the business is organized as a partnership or proprietorship, obviously only the personal income tax will be considered.

Case (1): Corporate Tax Alone Considered

To provide a bench mark for the following analysis, the effect of a flat rate 40% corporate income tax will be compared with conditions which would exist if no corporate tax were in effect.[1]

How would a 40% corporate income tax affect the attractiveness to small companies of projects such as the Electra development?[2] The issue, to repeat, is whether the potential rewards of a successful outcome of a highly perilous project would be sufficiently great to outweigh the grave danger of complete loss.

The most obvious effect of a 40% tax rate on the factors governing such a management decision would be to reduce drastically the profit potentialities of the investment. With a 40% rate the government would share 40% of whatever profits were earned *if the gamble were successful.* On the other hand, if the gamble failed, *the entire loss would be borne by the company.*[3] No taxable income would be available from other sources against which losses could be offset. Consequently, the profit potentialities would be reduced much more than in proportion to the increase in the tax rate.[1]

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[1] This technique of comparing the effects of the presence or absence of a high corporate tax needs careful qualification to avoid misunderstanding. See pages 4-8 and 87-88 for a discussion of this problem.

[2] It should be noted that for purposes of the following analysis the term "small business" must be defined in a special way. It is not used to designate a company of any fixed size. Rather, for present purposes *a company must be considered large or small in comparison with the size of the expansion which is contemplated.* In this sense it is conceivable that a $25 million company would be small in comparison with a sufficiently large program of expansion or in competition with a $500 million company.

This definition does not apply consistently throughout the book. Elsewhere, as for instance in Chapter V, the word "small" is used in a more conventional manner.

[3] This discrimination is not attributable to the absence of an adequate loss carryover. If the gamble had failed, bankruptcy would have resulted and a loss carry-

This effect of a tax is critically important. Although the expectation of profit is only one of many motives leading a management to make an investment, most investments will probably not be undertaken without the prospect of some minimum rate of profit in compensation for the risk and effort involved. While an outsider cannot set a numerical value to this rate in each given case, the important fact is that in most cases such a minimum rate exists. Once profits have fallen below this level, these ventures will not be undertaken, even though they may be attractive from other points of view. If taxes reduce expected profits below this level in a large number of cases, a substantial volume of employment and investment may be lost.

The "heads I share, tails you bear" tax treatment accorded small companies drastically reduces the profit expectancy of risky investments under consideration by such firms. This point may perhaps best be driven home by a simple numerical illustration. In actual practice, as the preceding discussion has emphasized, fundamental management decisions are based on much broader and more complex issues than the narrow dollar-and-cent computations of this illustration. Nevertheless, the illustration, because of its simplicity, helps place in sharp focus the drastic effect of high taxes on the profit potentialities of investment opportunities falling in the Electra category.

Suppose that an arithmetically minded business executive estimates the profit and loss potentialities of an investment proposition as follows: a 10% chance of a 200% profit on this investment; a 50% chance of a 100% profit; but a 40% chance that the investment will be a complete failure and that a 100% capital loss will result. On the assumption that no corporate income tax was in effect, the profit expectation of the investment could be computed as in Exhibit 2.

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over would have been of no benefit. Even if bankruptcy had been avoided, losses would have been so large in relation to profits which could reasonably have been expected in the immediate future that a carry-over would have given only slight relief.

[1] See footnote 2 on p. 34-35 for a formal demonstration on this point.

EXHIBIT 2. PROFIT EXPECTATION OF HYPOTHETICAL INVESTMENT PROPOSITION WITH NO INCOME TAX

Expected rate of profits	*Chance that this rate will be earned*	*Weighted profit expectation*
200%	1/10	20%
100%	5/10	50%
−100%	4/10	−40%
	Average profit expectancy =	30%

In other words, by weighting each expected rate of profit by the chance that this rate will be earned, the average profit expectation is found to be 30%. Another way of looking at the problem is that there are 6 chances out of 10 that a very satisfactory profit will be earned, but a 40% chance that the investment will be a total loss. Both considerations are relevant. An average profit expectation of 30% is good, but it may not be good enough to induce a business executive to run a 40% chance of losing the entire amount invested and perhaps of bankrupting his firm.

Suppose now that we drop the idyllic assumption that there is no corporate income tax and face the fact that such a tax does exist and that, in the postwar world, it probably will be a stiff tax. Suppose also that the full amount of the tax is borne by the company; that is, net income before taxes is not affected by the rate of the tax. The reason for this assumption is discussed on pages 7-8.

A 40% tax under these assumptions would reduce the value to the company of the 200% profit possibility on the proposition under consideration to 120%; similarly, the 100% profit possibility would be reduced to 60%. But the 100% loss possibility would remain unchanged.[1] Under these circumstances, as shown in Exhibit 3, *a 40% tax would reduce the profit expectancy from 30% (with no tax) to a mere 2%.*[2] Indeed, even the 2%

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[1] This example, it must be remembered, applies to a small firm undertaking a major development. No taxable income will be available against which losses on this development may be offset.

[2] The reader may question whether the conclusion that the profit expectancy will be reduced more than in proportion to the increase in the tax rate holds independently of the particular numbers chosen. A little experimentation will convince him that it does. The mathematically inclined reader will appreciate the following general proof. Let p_i be the chance of attaining each rate of profit x_i,

EXHIBIT 3. PROFIT EXPECTATION OF HYPOTHETICAL INVESTMENT PROPOSITION FOR SMALL FIRM WITH 40% INCOME TAX

Expected rate of profit with no tax	*Reduction in expected rate of profit resulting from 40% tax*	*Expected rate of profit with 40% tax*	*Chance that this rate will be earned*	*Weighted profit expectation*
200%	80%	120%	1/10	12%
100%	40%	60%	5/10	30%
−100%	——	−100%	4/10	−40%

Average profit expectancy = 2%

figure is an overstatement. For a company in Lockheed's position the possible loss, as a result of the Electra development, *would not be simply the amount invested in the development of this model.* Rather, it would be the entire value of the investment in the company, since the decision to undertake the development carried with it a serious risk of incurring bankruptcy. Thus, the loss to the owners of the company could exceed the amount invested in the new development; in other words, *the rate of loss computed as a percentage of the amount of the new investment could exceed 100%.*[1]

The computations of Exhibit 3 are unduly optimistic in another respect. A high tax would not only lower the net return to the investor if the adventure were successful, *but it would also cut down the probability of a successful outcome.* This point may be illustrated by Lockheed's experience. Lockheed's capital resources were so limited that any serious hitch in the Electra development would have spelled failure. Yet it is common experience in experimental work that several

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and q_i be the chance of realizing each rate of loss y_i, where $\Sigma p_i + \Sigma q_i = 1$. Let R_o be the over-all profit expectancy before taxes, R_t the over-all profit after taxes, and t the tax rate. Then $R_o = \Sigma p_i x_i - \Sigma q_i y_i$ and $R_t = (1 - t)\,\Sigma p_i x_i - \Sigma q_i y_i$. The percentage reduction in R_o due to the tax t will be $\frac{R_o - R_t}{R_o} = \frac{t\Sigma p_i x_i}{\Sigma p_i x_i - \Sigma q_i y_i}$, which equals t only if the second term in the denominator is zero, that is, only if no chance of loss is recognized. This treatment assumes, of course, that the firm does not have sufficient assured income from other sources against which losses on the venture in question can be offset.

[1] On the other hand, if the company itself had a very thin equity position and the expansion was financed mostly by borrowed funds, the actual loss of the owners of the company in the event of bankruptcy might be less than the dollar amount which they invested in the new development.

dead-end streets must be investigated before the proper road is discovered.

Another company with greater capital resources could have afforded the luxury of several mistakes in the development of the Electra and still have had the project turn out profitably. In other words, one of the principal reasons for the riskiness of the Electra development was the small amount of capital on which Lockheed was operating. When Lockheed undertook the Electra development, the corporate tax rate was about 13%. If corporate taxes had been higher than this, Lockheed's capital resources would have been even more limited,[1] and the risk of failure on the Electra project would have been even greater.

A high corporate tax therefore, by reducing the probability of success and by reducing the percentage return to a business if a development is successful, exerts a strong repressive effect on the expansion of small firms. The higher the tax, the more powerful the repressive effect.

Two qualifications to this conclusion, however, should be noted. First, under some circumstances these repressive effects appear less severe when the combined effects of the corporate and personal tax structures are examined; for an analysis of this point see the following section. Secondly, the desire of an aggressive business management to expand may be so intense that expansions will be undertaken in spite of the repressive effect of high taxes. Many such managements may be imbued with the spirit of Mr. Gilligan to go through with his plans, come hell or high water. High taxes may cause such men to fail; they are unlikely to prevent them from trying.

Case (2): Combined Effect of Corporate and Personal Taxes

The preceding section has ignored possible effects of personal income taxes on the decisions of business management. For small, closely held companies this procedure is sometimes unrealistic. In many instances manager-owners will be principally interested in the effect of their business decisions on their personal status. On the other hand, owners of small businesses frequently tend to identify themselves with their business and to make decisions with the interests of the business primarily in mind.

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[1] The reduction in the outside capital which Lockheed could have obtained would have been much more important than the reduction in its retained earnings. See below, page 52, and the interim report on the Lockheed Aircraft Corporation (Harvard Business School, Division of Research, 1944), pp. 19-21.

Unfortunately, no simple, generally valid statements can be made about the *combined* effects of corporate and personal taxes on management incentives to undertake business expansions. A large variety of different situations may arise and the tax effects will be different for each of them.

In general, the personal tax structure tends to exaggerate the repressive effects of the corporate tax in the following respects:

1. The stockholder will have to pay a personal income tax on any dividends paid to him as the result of a successful business expansion. But if losses are incurred, so long as the corporation remains solvent the losses cannot be "distributed" to stockholders and thus be available as deductions in the computation of taxable income.[1]
2. The highly progressive character and severity of the surtax rate schedule sharply curtails the net return of dividends to stockholders with substantial incomes. Dividends received by such stockholders ordinarily will be taxed at higher rates than the income against which possible capital losses realized by stockholders can be offset.
3. Indeed, the stockholder may never be able to offset losses on a new development against otherwise taxable income. Such losses, if incurred by a corporation, can be deducted by stockholders only as capital losses. The tax law places rather severe limitations on the deductibility of capital losses. Moreover, even if these losses are deductible, they can with minor exceptions be offset only against income taxed at a maximum rate of 25%.[2]

Manager-owners of closely held corporations are particularly likely to be unable to offset losses on unsuccessful developments

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[1] In this respect the treatment of business income received by a partnership differs strikingly from that of a corporation. Partnership profits and losses are taken into account in full in computing the *personal* income taxes of the partners.

[2] Capital losses are deductible only to the extent of the amount of capital gains plus ordinary net income up to a maximum of $1,000. But net losses disallowed as deductions by this limitation can be carried forward to the five succeeding years and deducted from net capital gains in these years and from ordinary income up to a maximum of $1,000 a year.

> against otherwise taxable income. They frequently will have a large percentage of their personal assets invested in their business, as, for instance, do the owners of the Clarkson Manufacturing Company[1] and Continental Machines, Inc.[2] Under these circumstances, if a major attempt at expansion proves unsuccessful, it is highly unlikely that the owners will have sufficient income from other sources to absorb any appreciable fraction of this loss. Thus, it is quite possible that the personal tax structure, as well as the corporate tax, may confront the owners of closely held companies with a one-sided tax treatment. In such instances the *combined* effect of the personal and corporate income taxes on management incentives will be even more repressive than that of the corporate tax considered by itself.

But the preceding points tell only one side of the story. In other respects, such as the following, the personal tax structure tends to mitigate the repressive effect of the corporate tax.

> 1. It is highly probable that the profits resulting from a successful business venture will be realized primarily in the form of capital gains rather than dividends. The spirit which leads a management to undertake one Electra-type expansion is very likely to induce it to take others. Lockheed, for instance, has continued to develop new and larger planes from 1933 to the present day. No dividends were paid by the company until 1939; all its profits until this date were reinvested in the company. Stockholders received their profits in the form of capital gains. Since capital gains are taxed only when realized, and then at low rates, high surtax rates had little effect on the profitability of the Electra development to Lockheed stockholders.[3] Indeed, given the present taxation of capital gains, much of the invective hurled at the repressive effect of progressive surtax rates on highly venturesome investments is beside the point.
>
> 2. Moreover, the taxation of capital gains resulting from a successful development may be long delayed or, in the extreme case, permanently avoided by the death of the stockholder. Such gains will not be taxed until they are realized; manager-owners of closely held companies, in particular, are likely to hold their stock for an indefinite period of time before selling.

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[1] See Chapter X. [2] See Chapter XI.

[3] It should be noted, however, that during the period 1934-1938 the tax treatment of capital gains and losses was considerably *less favorable* than it is today.

3. Not so with losses. If expansions such as the Electra development are unsuccessful, losses resulting from them will be promptly felt. Hence, these losses can be offset against taxable income—provided such income is available—within a relatively short period of time. But the force of this point is considerably reduced by present restrictions on the deductibility of capital losses.

What is the net effect of these conflicting considerations? Obviously, it will depend on the particulars of a given case. But except for wealthy individuals with widely diversified investments, it does not seem probable that the personal tax structure will ease the burden of the corporate tax to any appreciable degree. In cases such as Continental Machines, in which the owners have invested a large percentage of their personal assets in a single business endeavor, the personal tax structure probably accentuates the repressive effect of the corporate tax.

Case (3): Partnership or Proprietorship, Personal Tax Alone Considered

If a business is organized as a proprietorship or partnership, the personal income tax greatly reduces the incentive of its owners to undertake major expansions — perhaps more so than the corporate tax impedes expansions by small corporations. The highly progressive rates of the personal income tax strike with full force at the profits resulting from a partnership expansion. But if the expansion is unsuccessful and results in business failure, the partners' personal assets as well as their business assets and perhaps also their jobs will be in jeopardy.

Consider, for instance, the alternatives confronting S. J. Clarkson at the time he decided to convert from peace to war production. Mr. Clarkson had established a new business, owned solely by him and his wife, in 1937. The company had grown rapidly until in the year ending June 30, 1941, sales exceeded $500,000 and net income $80,000. The prospects for a continued, long-run growth in the manufacture of formed plywood products were good, but this growth would have been temporarily arrested by the war. In 1941, however, the company was in no position to undertake new commitments; rapid expansion and large acquisitions of fixed assets had already placed it in an exceedingly tight financial position.

In 1941, therefore, Mr. Clarkson faced a critical decision — that of continuing the manufacture of his peacetime products at a relatively low volume during the war or of converting to an expanded scale of wartime production. In many respects this decision is analogous to the alternatives confronting the Lockheed management in 1933.

Continued production of peacetime products probably would have assured the postwar existence of the business, but it offered no prospects for large profits in the immediate future. It also appeared dull and uninteresting to Mr. Clarkson as compared with the excitement and satisfaction of a direct contribution to the war effort.

Conversion to war production, on the other hand, had the attraction of a stimulating venture in an important new field. It also presented excellent opportunities for a large-scale expansion and high profits. But these objectives could be achieved only by incurring very great risks. As the discussion in Chapter X indicates, the solvency of the firm and of Mr. Clarkson as an individual clearly depended on the successful completion of his first war contract.

How does the personal income tax influence management incentives to undertake expansions in important new fields?[1] If the expansion was successful, the government would share a large percentage of the profits. Because of the progressive nature of the personal income tax, the *more successful* the venture, the *larger* would be the government's share in the profits. Indeed, at present tax rates, if the development was sufficiently profitable to raise the taxable income of any partner to $14,000, that partner would pay 50% or more of any additional profits to the government as taxes. If the development raised an individual partner's annual income to $44,000 or more, at least 75% of any additional income would be absorbed by taxes. In other words, the highly progressive nature of the existing surtax rates makes it exceedingly difficult for a partnership to earn a large return, after the deduction of the partners' income taxes, unless the ownership of the partnership is divided among a large number of individuals.

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[1] The fact that Mr. Clarkson's expansion was actually made in the area of war production is incidental to this discussion. The basic principles would apply to any expansion large enough to involve risks of heavy losses and, in the extreme case, bankruptcy. Actually, expansions such as Mr. Clarkson made could be much more easily carried through in wartime than under ordinary circumstances because of exceptionally favorable market conditions and, in general, more easily available credit facilities.

But if Mr. Clarkson's attempt to convert to war production had failed, the loss would have been concentrated in a single year. He would have had no other income of any consequence against which this loss could have been offset. Along with his business loss his job would have disappeared and he probably would have had to surrender his other personal property.

In this respect, Mr. Clarkson's case is clearly extreme. In other instances, the investment in the partnership might be much smaller relative to the personal assets of the partner. Hence, other income might be available against which partnership losses could be offset. But, even so, the deduction of losses from this income would result in tax savings in lower surtax brackets whereas additional income from the partnership would throw the taxpayer into higher surtax brackets. Moreover, under these circumstances the individual partner to some degree would be risking his entire personal assets for a relatively small potential income from the partnership; this income would be taxable at high surtax rates.

All in all, under most circumstances the partnership form of organization does not appear very attractive for small enterprises with a large potential growth, even in comparison with the present very high taxation of corporate profits. In this connection it is pertinent to note that one method of tax relief frequently proposed for small businesses is to allow them to compute their tax liabilities on a partnership basis, although they are organized as corporations. This privilege may be of considerable value to the owners of a corner grocery store or of a local service station. But, unless personal tax rates on incomes of, say, $10,000 and over are reduced much more than would appear feasible after the war, it would ordinarily be of little value to small companies with prospects for large-scale growth.

POSSIBLE MODIFICATIONS IN TAX STRUCTURE OTHER THAN RATE REDUCTIONS

The preceding section clearly indicates that high taxes on the income of small companies would severely reduce the incentive for the managements of these companies to undertake major expansions. This analysis, however, has implicitly assumed that the general structure of the corporate and personal taxes will remain unchanged. It is therefore pertinent to ask the question: How would various currently discussed modifications in the tax structure affect the management incentives of small companies?

In so far as the corporate tax alone is concerned, the situation would be improved in some instances by a more rapid write-off of fixed assets and development costs. For a company such as Lockheed in 1933, however, this change would be of little value; Lockheed had only a small income to absorb additional deductions in 1933 and none at all in 1934. A long loss carry-over would also be helpful, especially if the expansion in question was not large enough to threaten bankruptcy in the event of failure.[1]

If the combined effects of both the corporate and personal taxes are considered, the profit expectancy of a new expansion from the point of view of the stockholder might be considerably improved by elimination of the double taxation of dividends, a relaxation of the limitations in the deductibility of capital losses, and an averaging device for the computation of personal income taxes.

Each of these possible revisions in the present tax law raises many complicated problems which cannot be discussed in this study. These revisions are mentioned not to endorse them, but rather to point out that they constitute a possible alternative to rate reductions as a means of improving management incentives.

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[1] It should be noted, however, that Exhibits 2 and 3 implicitly assume that a carry-over is in effect; otherwise the effective tax rate on the profits resulting from the expansion might exceed the statutory rate even though the development eventually proved to be successful.

SOCIAL IMPORTANCE OF MAJOR EXPANSIONS BY SMALL COMPANIES

The successful completion on a wide scale of major expansions by small companies is of great social importance because of their effect both on employment and on industrial concentration. These effects may be illustrated by a further reference to the Lockheed experience.

Effect on Employment

In the face of substantially higher taxes Lockheed might have made one of the following three decisions in 1933: (1) the plan to expand by producing multi-motor planes might have been permanently abandoned; (2) the expansion might have been attempted in spite of the increased tax burden, in which case it would probably have resulted in bankruptcy; or (3) the expansion might have been delayed until larger capital resources were available.

The course of expansion actually followed resulted in a rapid increase in industrial production and employment at a time when the country was desperately in need of such assistance. As shown in Exhibits 4 and 5, Lockheed's net sales rose from $356,000 in 1933 to $2 million in 1936, $5 million in 1937, $10 million in 1938, $35 million in 1939, and, of course, to far higher figures during the war.[1] Its employment rose correspondingly from 315 at the end of 1934 to about 2,000 at the end of 1937, 4,000 at the end of 1938, 7,000 in 1939, and 19,000 in 1940.

The general trend of Lockheed's sales and employment history, had it remained in the small, single-engine field, may perhaps be illustrated by reference to the experience of companies which have produced successful models in that field over a period of years. Take, for instance, the Waco Aircraft Company. Since the 1920's it has produced small single-engine planes. It is now producing light trainers for military use. From 1929 throughout the 1930's, its employment re-

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[1] Through 1937 these sales consisted almost wholly of commercial planes; military production was started on a large scale when British and Australian orders were accepted in mid-1938, but 1938 sales consisted mostly of commercial planes.

EXHIBIT 4. COMPARATIVE SALES AND EMPLOYMENT RECORDS OF LOCKHEED AIRCRAFT CORPORATION AND WACO AIRCRAFT COMPANY

	Lockheed		*Waco*	
Year	*Sales (In thousands)*	*Employment**	*Sales (In thousands)*	*Employment**
1928			$2,195	†
1929			1,585	250
1930			860	200
1931			578	145
1932			923	165
1933	$ 356	†	975	275
1934	563	315	895	†
1935	2,097	460	1,236	270
1936	2,007	1,575	1,054	200
1937	5,210	2,035	877‡	236
1938	10,275	4,300	748	170
1939	35,308	7,000	926	201
1940	44,937	18,724	1,150	360
1941	144,728	†	2,813	†

*End of year, or date nearest thereto for which data are available.
†Data not available.
‡Fiscal year of nine months.

SOURCE: Data from Moody's and Poor's *Industrials* and company reports.

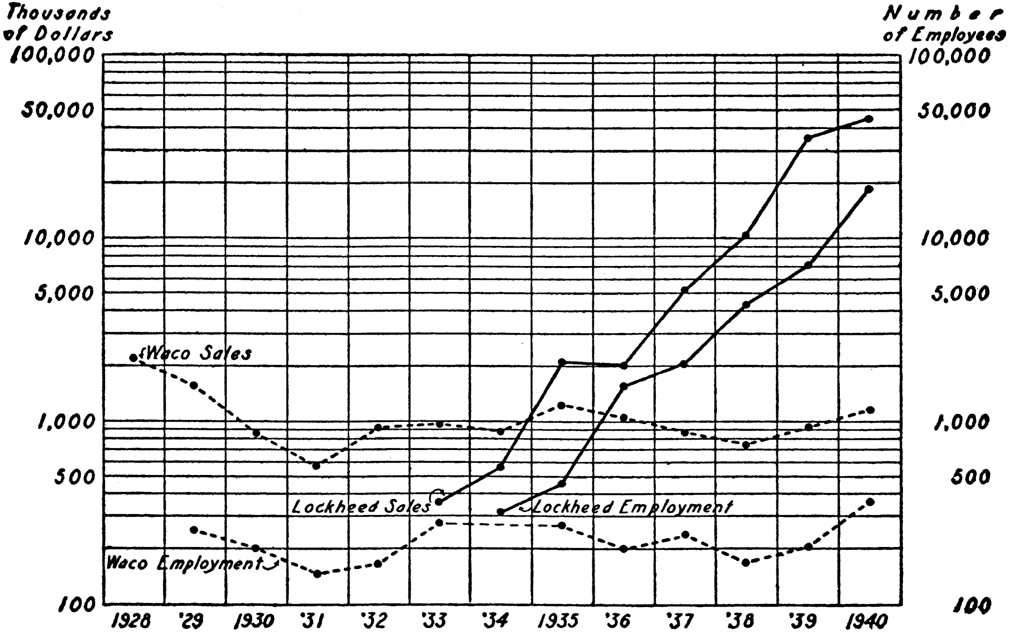
mained relatively constant at or near 200 employees. Likewise, its annual sales did not vary far from $1 million during the period 1929-1940. The fact of the matter is that, in this decade at least, the production of small single-engine planes simply did not offer opportunities for large-scale growth.

It could be argued that if Lockheed had not developed the Electra model, some other company would have produced a similar plane to fill the same market. In this event, it might be contended, the restrictive effect of taxes on Lockheed would have been partially or wholly offset by the production of other firms. But if taxes had prevented Lockheed from undertaking the Electra, they would have presented other small firms with similar obstacles.

Effect on Industrial Concentration

A large, established company, on the other hand, might not have been seriously deterred from a similar development by

EXHIBIT 5. COMPARATIVE SALES AND EMPLOYMENT RECORDS OF LOCKHEED AIRCRAFT CORPORATION AND WACO AIRCRAFT COMPANY, 1928-1940



SOURCE: Data from Moody's and Poor's *Industrials* and from company reports.

a 40% tax.[1] Indeed, as a general proposition, high business taxes discriminate with special severity against the growth of small, independent firms and in favor of large, established companies with assured incomes from other sources.

First, high corporate taxes do not reduce the profit expectancy of a new development by a large company to the same extent as for a small firm. For instance, if the Electra had been a failure, Lockheed would have borne the *entire* loss. If, however, a successful large company producing other products and selling in other markets had undertaken the same project, any losses would have been deductible from income earned by this company from other activities. The government would have shared the loss of the large company, while the small firm would have had to bear its entire loss. Indeed, the higher the tax rate, the smaller would be the loss which the large company would have to bear.

The significance of this point may be driven home by referring again to the numerical illustration of Exhibits 2 and 3. This illustration showed that, for a firm such as Lockheed in 1933, a 40% tax would have reduced the profit expectancy of the hypothetical investment opportunity from 30% to a mere 2%.

The issue now is, How would a 40% tax rate have changed the profit expectancy of the *same* investment opportunity for a large company with assured earning power from other sources?[2] The return to a large company would be reduced to the same extent as that to a small firm *if* the investment turned out profitably. If the investment failed, however, the loss to the large company would never be more than 60% of the amount invested.[3] The government would bear 40% of any loss in the form of decreased tax receipts. Thus, the profit expectancy of the established firm expressed as a percentage of the original amount invested would be reduced by a 40% tax rate from 30% to 18%, as is shown in Exhibit 6.

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[1] A large, established firm is defined as a firm which has reasonable assurance of an annual net income in excess of the maximum loss on the new investment that may be incurred in any one year.

[2] Aside from the tax considerations, large firms obviously have many advantages over small firms, such as an existing administrative organization, dealers' outlets, trade names, borrowing power, credit standing, and general "know-how."

[3] It should be noted, however, that whereas a small company forced into bankruptcy by an unsuccessful development would pass part of its losses on to its creditors, a large company would have to bear the entire loss itself except for the part that the government would absorb in the form of reduced tax receipts.

EXHIBIT 6. PROFIT EXPECTATION OF HYPOTHETICAL INVESTMENT FOR LARGE FIRM WITH 40% INCOME TAX

Expected rate of profit with no tax	*Reduction in rate of profit with 40% tax*	*Expected rate of profit with 40% tax*	*Chance that this rate will be realized*	*Weighted profit expectation*
200%	80%	120%	1/10	12%
100%	40%	60%	5/10	30%
−100%	−40%	−60%	4/10	−24%
			Average profit expectation =	18%

In other words, a flat-rate tax would reduce the profit expectancy of the large company in proportion to the increase in the tax rate (from 30% to 18%), whereas the profit expectancy of the small firm would be reduced much more than in proportion to the increase in the tax rate (from 30% to 2% in the hypothetical illustration).[1] The leverage of the tax is thus much greater on the profit expectancy of the small firm than on that of the large company.

The differential is even more startling if the comparison is made in terms of the amount of capital at risk. The small firm would risk not merely the amount invested in the new endeavor but rather its entire capital. On the other hand, the established company, because of the tax reduction in the event of loss, *actually would risk only part of its investment.*[2]

Thus, a high corporate tax strikes a small firm with special

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[1] This proposition with reference to a large firm with assured income from other sources may be demonstrated by an algebraic analysis similar to that in footnote 2 on page 34. The percentage reduction in R_o due to the tax t for this firm will be

$$\frac{R_o - R_t}{R_o} = \frac{R_o - (1 - t)\,R_o}{R_o} = t.$$

The analysis throughout assumes that a corporate tax is not passed on to consumers in the form of higher prices. Under an assumption that the tax is partly shifted the analysis becomes much more complicated and cannot be developed here in detail. Such an analysis, however, would show that it is quite possible that a small firm would be at an even greater relative disadvantage on the latter assumption.

[2] In the simplest instance, the expected rate of return on the capital actually at risk by the established company would be unaffected by the tax. A 40% tax would cut down the dollar profit and the capital at risk by the same percentage.

force both through its greater leverage on the profit expectancy of an investment project and by increasing the proportion of capital at risk.

In addition to these factors, it has already been pointed out that the limitation on available capital resources resulting from a tax will be more burdensome on a small firm than on a large company. High taxes bite deeply into the capital supply of small firms. Since one of the major elements of risk for a small firm is the danger of being caught short of capital and thus of having to abandon a project on the verge of success, high taxes drastically reduce the prospect of success to a small firm. On the other hand, the large company has greater leeway for experimentation and mistakes. Even with very high tax rates a development of the magnitude of the Electra, or, for that matter, one many times as large, would not present a major financial problem to many large, established companies.

In conclusion, it should be stated that this comparison of the effects of taxes on small and large companies illustrates the two extreme cases. Both of these cases are representative of a large number of actual new developments. But probably a larger number will fall in an intermediate position in which part of, but not all, the losses on a new development could be offset against otherwise taxable income. Attention should perhaps be called once again to the special definitions of the words *small* and *large* in this chapter.

CHAPTER IV

Effect of Taxes on Expansion of Small Companies: Availability of Capital

SUMMARY OF CONCLUSIONS

1. High taxes restrict the growth of small companies, perhaps more than in any other way, by the limitations which they place on the amount of capital available to such companies. Management can and often does ignore the adverse incentives resulting from high taxes. But it cannot safely ignore the limitations placed on new expansions by the lack of adequate capital to finance them.

2. For a variety of reasons, the restrictive effect of *corporate* taxes on the availability of capital to small companies is particularly powerful.

(a) First, corporate taxes directly reduce the amount of net income, and hence the amount of retained earnings, available for expansion.

(b) Secondly, corporate taxes — by reducing the potential profitability of new developments and by making them more risky — will cause the *terms* on which small companies can obtain outside capital to deteriorate. In many cases, less favorable *terms* will be equivalent to a reduction in the *amount* of capital which can (or will) be obtained from outside sources.

3. Retained earnings are an especially important source of funds for business expansion, *since many expansions will be undertaken only if they can be financed from retained earnings.* For instance, management may be unwilling to weaken its control position and its freedom of action by acquiring new equity capital; it may also be unwilling to incur the risks and restrictions ininvolved in borrowing funds. Or it may simply be unable to acquire outside capital.

4. It is much less clear that personal income taxes, on balance, divert funds from highly venturesome enterprises. High

individual surtaxes do absorb large amounts of savings otherwise potentially available for risky investment. But the large differential between the high surtax rates on ordinary income and the much lower rates on capital gains acts as a positive incentive for many investors to search for speculative investments which may yield large capital appreciation.

5. In general, therefore, high corporate taxes appear to curtail the availability of capital to small companies with outstanding growth possibilities much more than do high personal taxes — at least so long as the favorable treatment now accorded capital gains is continued.

EFFECT OF CORPORATE TAXES ON AVAILABILITY OF CAPITAL

Effect on Retained Earnings

In the very early stages of a new business, the reduction in retained earnings resulting from a high corporate tax is less likely to be important than in later phases of the growth of the business.

Lockheed, for instance, had a net income before taxes of only $30,000 in 1933. A tax rate of 40% would have increased its tax liabilities by about $8,000 over those actually incurred in 1933. Relative to the cost of the Electra development, $8,000 more or less would not have been especially important.

Similarly, in the early stages of Lithomat and Polaroid, corporate taxes did not greatly affect the amount of capital available *from retained earnings.* Neither company reached a level of consistently profitable operations until it had passed through a period of development that lasted for several years.

The effect of corporate taxes on funds available for expansion changes markedly, however, after a consistently profitable level of operations has been achieved. Over a period of years a high corporate tax will drastically limit the ability of a profitable small company to expand from retained earnings; this limitation is much more severe than is commonly realized.

This point is developed at length in Chapter VI and is therefore only sketchily outlined here. Over a period of years a 50% corporate income tax, for instance, would reduce the funds available from retained earnings to finance the future growth of a company such as Polaroid or Lithomat by *much more* than 50%. It is true that in the first year in which the tax was in effect it would reduce net income by only 50%. But the earnings of later years would depend in part on the earnings retained from the profits of previous years. Year after year these earnings would be reduced by the cumulative effect of a high corporate tax. Over a period of years, therefore, the tax would restrict the growth which could be financed from retained earnings perhaps to a small fraction of the growth that could have been financed with no tax or with a substantially lighter tax in effect.[1]

EFFECT ON AVAILABILITY OF OUTSIDE CAPITAL

It has been shown that a high corporate tax would sharply lower the profit expectancy of a risky expansion undertaken by a small company, and, in addition, would greatly reduce the potential expansion from retained earnings of a growing company over a period of years. But the principal attraction offered by the stock of small companies undertaking venturesome developments is the prospect of high profits and rapid growth. A high corporate tax, by limiting these prospects, would almost inevitably hold down the value of the stock of such companies.[2]

The practical effect of lower stock prices would be to make expansions financed by outside capital much less attractive to existing stockholders. These stockholders would be required to surrender an increased percentage of their ownership interest in their company as a price for a given amount of new capital. If the existing management or stockholders insisted on maintaining a specified percentage ownership in order to protect their control position, the deterioration in the *terms* on which outside capital could be obtained would reduce, often substantially, the *amount* of new capital which could be raised. This reduction in the available outside capital would increase the chances of failure on the whole investment undertaking.[1]

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[1] This paragraph grossly oversimplifies an extremely complicated problem. Many implicit assumptions are introduced, such as that the tax is not shifted, that the company could use additional funds profitably, and that the decrease in the profits resulting from the tax would decrease retained earnings rather than dividends.

[2] Stock prices *in general* will not necessarily decline in proportion to the decline in (expected) net income resulting from an increased tax. Conceivably, the capital seeking the higher return available on equity investments may be sufficiently large and determined to cause the stock market to find its equilibrium at a higher price-earnings ratio with a high corporate tax than with a lower corporate tax. Even admitting this possibility, however, it is highly probable that a high corporate tax would result in a lower level of stock prices *in general* than would a lower tax. If this probability holds for stock prices in general, it may be regarded as a virtual certainty for highly speculative stocks in which the risk of complete loss is great.

In this respect a high corporate tax would seriously worsen the position of a growing firm such as Lithomat in competition with its more stable, established competitors. The point may be illustrated by considering the relative effects of, say, a 25% and a 50% postwar corporate tax rate on Lithomat and on one of its well-established competitors which, it is assumed, has reached its full growth and is expected to operate at a relatively constant volume and level of profitability for some years to come. Since the competitor's net income is not needed to finance expansion, it is paid out in dividends to stockholders. For purposes of discussion, assume also that the full burden of the tax is borne by stockholders and that the stock of Lithomat's competitor, Company X, would sell at the same multiple of its annual earnings after taxes, irrespective of the level of the tax rate. Under these circumstances a higher tax rate would reduce the price of the stock of Company X in proportion to the decline in its income resulting from the higher tax. A 50% tax rate, for instance, would result in a 33⅓% lower price on the stock of Company X than would a 25% tax rate.[2]

Under the same circumstances, however, a 50% tax, as compared with a 25% tax, would cause a *much* greater relative deterioration in the price of Lithomat's stock. The market valuation of Lithomat's stock is presumably determined by offsetting the discounted value of the potential earning power of the company against the risks faced by the company — risks which are obviously much greater for Lithomat than for its established competitors. As already noted, the cumulative effect of a higher tax on a growing company such as Lithomat would reduce its future earning power much more drastically than in proportion to the decline in income resulting from the tax in any given year. *In addition*, the higher tax would increase the risks of such a venture. For instance, the very survival of a growing company in a competitive industry, let alone its expansion, depends in large measure on its ability constantly to improve its products and to increase the efficiency of its operations. To the extent that taxes cut into the company's limited capital supply, the necessary improvements will be more difficult to introduce.

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[1] See above, p. 36.

[2] Suppose that Company X earns $4,000,000 a year before taxes, that it has 4,000,000 shares of capital stock outstanding, and that its stock sells at 10 times its annual earnings. With a corporate tax rate of 25%, net income after taxes would be $3,000,000 and the price of the stock would be $7.50 a share. With a corporate tax rate of 50%, net income after taxes would be $2,000,000 and the price of the capital stock would be $5 a share, 33⅓% less than with a 25% tax.

It should be noted in passing that, in addition to cutting down the retained earnings of Lithomat and making outside capital less accessible, a high corporate tax would indirectly decrease the borrowing power of the company. The ability of a company to borrow depends largely on the strength of its net worth and working capital positions. Increased tax payments would obviously weaken both of these positions. The resulting reductions in borrowing power would constitute a much more serious limitation on a small, growing company than on a large, established company.

To summarize, in addition to curtailing drastically the potential earning power of Lithomat in future years, a high corporate tax would increase the risks confronting the company. Such a tax, on the other hand, might even make the future of Company X more secure. It would lessen the intensity of the competition which established companies would face from small but rapidly growing competitors such as Lithomat. The combined effect of all these considerations makes it appear almost certain that a high tax rate would depress the price of Lithomat's stock and its ability to borrow much more than that of its well-established competitors.[1]

The importance of this fact is still further accentuated when the relative need of Lithomat and its large competitors for outside capital is compared. Even with a very high tax rate, an older, established company often would have large amounts of funds coming available from its noncash expenses. Indeed, the level of corporate taxes might have very little effect on the actual operations of a company that had reached its full growth; higher taxes might simply mean lower dividends for stockholders.

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[1] This comparison, for purposes of simplicity of presentation, has assumed that a corporate tax is not shifted to consumers or wage earners and that the price-earnings ratio of the stock of Company X would be unaffected by the level of the corporate tax rate. Neither of these rigid assumptions, however, is essential to the logic of the argument. So long as Lithomat and Company X are equally affected, the conclusions of the text hold.

Lithomat, on the other hand, does not have any significant amount of funds coming available in the form of depreciation and other reserves. It must depend primarily on retained earnings and outside capital for funds with which to purchase new assets and to finance the introduction of new processes and techniques.

The general conclusion indicated by all these considerations is that *after a new business has reached the stage of profitable operations, high corporate taxes exert a strongly repressive effect on expansion financed either by retained earnings or by the acquisition of outside capital.*

WILLINGNESS AND ABILITY OF MANAGEMENT TO ACQUIRE OUTSIDE CAPITAL

In comparing the relative importance of retained earnings and outside capital as a means of financing new developments, it is important to remember that small firms may be unable to obtain funds from the capital market or be unwilling to do so. Economists have frequently overlooked this fact in discussing such problems as the desirability of an undistributed profits tax.

The managements of small companies with outstanding growth possibilities are particularly likely to be unwilling to seek outside capital. The kind of men who start businesses such as Continental Machines or Polaroid frequently place a high value on the maintenance of personal control over their business.

Leighton Wilkie of Continental Machines, for instance, carries this point of view to an extreme. As indicated in Chapter XI, Mr. Wilkie has followed a deliberate and carefully planned management policy designed (1) to give the owner-managers of the company maximum freedom of action in conducting every phase of their business and (2) to create the strongest possible incentive for the exercise of personal initiative on the part of all employees.

As one means of implementing this policy Mr. Wilkie and his relatives have run no risk of compromising their freedom by losing financial control of their companies. They have carefully maintained in the family a 100% ownership of the equity capital of their principal business interests.

Indeed, they have carried their emphasis on financial freedom of action farther than this. The management has also refrained from incurring indebtedness that might in any way restrict its freedom. No long-term debt has ever been held by anyone other than the Wilkie family. Even bank loans have been resorted to very sparingly. In other words, almost all the capital requirements of the company have been financed by the personal contributions of the Wilkie family and from retained earnings.

Edwin H. Land, founder of the Polaroid Corporation, also places great emphasis on the importance of maintaining a strong control position. Mr. Land has not insisted on maintaining 100% ownership; indeed, $750,000 of outside equity capital was acquired in 1937. But the details of this transaction were arranged to safeguard Mr. Land's control position.

All the available evidence indicates that the motivation behind Mr. Land's position is largely noneconomic. Indeed, from a narrow dollar and cents point of view Mr. Land and his colleagues might easily benefit financially by selling out to a large, established company. Certainly, Mr. Land would acquire greater financial security by doing so. If acquisition of control were added to the prospective earnings of Polaroid, an industrial purchaser might be willing to bid even more than the present market price for its stock. Mr. Land could probably acquire several million dollars for his personal interest in the company, enough to assure him a substantial income for life. But he is more interested in scientific research and promoting his philosophy of business organization than he is in financial security. This is not to say that Mr. Land is oblivious to business profits. On the contrary, a fundamental article of faith in the Polaroid creed is that over the long run basic scientific research can be profitably carried on by a vigorous and talented business enterprise.[1]

Men like Messrs. Wilkie and Land obviously will be much more likely to undertake new developments if they can be financed from retained earnings than if they can be financed only by acquiring outside capital. Indeed, they have shown a strong disposition to reinvest every dollar of their profits in new expansions. But they have stopped short of raising outside capital at the expense of their control position.

The amount of funds which companies like Continental Machines and Polaroid will have available for expansion thus will depend in part on the level of the corporate tax rate. The higher this rate, the smaller will be the expenditures which these companies will make in an effort to expand their business. This conclusion will hold even though abundant savings may be available in the economy from other sources.

Once again, however, it must be recalled that these experiences of individual companies are in themselves merely illustrative. The question still remains: To what extent is the attitude of Messrs. Land and Wilkie representative of a large range of business experience? Or, to broaden the question somewhat: To what degree and under what circumstances are other companies than Continental Machines and Polaroid restricted primarily to retained earnings as a source of equity capital for long-run expansion?

For a variety of reasons, the expansion of small firms may be dependent on the availability of funds from retained earnings. The more important reasons are:

(1) Companies with outstanding prospects for growth are likely to attach vital importance to control and ownership considerations. An aggressive, enterprising management will tend to place strong emphasis on the freedom of action provided by a strong control position. Likewise, an acquisitive management will hesitate before sharing brilliant prospects with outside capital. Where either of these motivations is dominant, a slow rate of expansion financed by retained earnings may be

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[1] For a detailed statement of Mr. Land's business philosophy see Edwin H. Land, "Research by the Business Itself" in *The Future of Industrial Research* (New York, Standard Oil Development Co., 1945), pp. 81-86.

preferred to a more rapid expansion with the aid of outside capital.

(2) Many companies may find the task of raising outside capital difficult or impossible. Indeed, in this respect companies such as Polaroid are less tied down to retained earnings as a source of funds for expansion than are many other firms. Polaroid has a "glamour" product which has caught the public imagination; hence, at the present time it would be able to raise new capital apparently on favorable terms. In view of past fluctuations in the value of the stock, however, there is no guarantee that Polaroid will still be able to raise capital on a favorable basis during the unsettled transition years when its need for funds probably will become acute.

Other firms with less spectacular products might be willing to expand by raising new capital but be unable to obtain this capital at a reasonable price. In particular, small firms which cannot afford the expense of a registered public stock offering may have a difficult time acquiring new capital. For an extended discussion of the difficulties encountered by small companies in raising new capital, see Chapter VII. Unless these companies can acquire equity capital, they will be forced to borrow excessively or to restrict their expansion to the amount which can be financed from retained earnings. Family-owned enterprises unwilling to surrender control ordinarily must rely on retained earnings as a source of funds for expansion, since investors are reluctant to furnish capital in exchange for a minority interest in such an enterprise. Partnerships frequently will be barred from the capital market unless the owners are willing to reorganize their business as a corporation. Indeed, there is perhaps more truth than error in the generalization that small firms which can raise new capital easily often may not be willing to accept it, while small enterprises most eager for new capital frequently may be unable to raise it.

(3) Finally, even among firms which would be willing to accept new capital and which could raise it, sheer inertia and ignorance of the mechanics of doing so may be responsible for the abandonment of many borderline decisions to undertake expansions. The process of acquiring new equity capital by a public flotation is complicated and costly. Expert legal and

financial assistance generally is required. If the offering is public, the preparation of the detailed information required by investment bankers and the Securities and Exchange Commission constitutes a major research task.[1] These technicalities may not constitute serious impediments to large companies with expert staffs, but they are likely to be of major, and possibly determining, importance to small firms with limited executive personnel.

Even large companies which could easily raise new capital may display a tendency to limit expansions to those which can be financed from available funds. Executives of a number of such companies have stated to the authors that they knew of plenty of good investment opportunities if they only had the capital to finance them. But, they stated, their capital was all employed elsewhere or was needed to maintain a reasonably secure financial position. In other words, these men seemed to draw a clear distinction between expansions which could be financed from internally available funds and those which could be financed only by acquiring outside capital. They apparently demanded a much higher expected rate of profit for the latter category of expansions than for the former.

These comments with reference to large companies are intended to be purely of a suggestive nature. But the evidence with reference to small companies is much more conclusive. For many small companies retained earnings clearly must be (or are) regarded as the only available source of equity capital with which to finance new expansions.

EFFECT OF PERSONAL TAXES ON AVAILABILITY OF CAPITAL

How does the personal tax structure affect the flow of venture capital to business enterprises? Unfortunately, much of the factual evidence needed to answer this question simply is not available. Little is known, for instance, of the income brackets from which most venture capital is supplied. The problem is further complicated by the fact that the personal tax structure discourages the flow of venture capital to business in some respects and encourages it in others. Consequently, the following comments must be regarded as highly tentative.

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[1] No implication that these requirements are unreasonable is intended. Protection of the interests of purchasers of new securities obviously requires full and accurate disclosure of all relevant information. Nevertheless, it must be recognized that the time and cost involved in meeting these requirements will cause expansions for which outside capital must be obtained to be judged more critically than those which can be financed from internal sources.

It is generally assumed that wealthy individuals and, to a lesser degree, middle-class individuals supply a large proportion of the risk capital available to finance business expansions. High individual surtaxes obviously reduce the amount of savings available to individuals in these income classes. Moreover, it seems probable that high surtaxes strike with special intensity at that portion of personal savings which would otherwise be available for risky investment. Savings used to meet contractual commitments such as the purchase of life insurance and retirement annuities are probably rather constant in amount, at least over considerable periods of time. Increased surtaxes therefore probably would absorb "free" savings, potentially available for venture investments, to a greater degree than contractual savings.

Furthermore, some of the devices resorted to as a means of avoiding high surtaxes and death taxes tend to dry up the supply of venture capital. For instance, a large amount of wealth is tied up in trusts of various sorts that effectively prohibit risky investments. Likewise, tax-exempt securities, although perhaps less attractive than they used to be, still divert capital away from investment in business enterprises.

On the other hand, the large differential between the present high surtax rates on ordinary income and the much lower rates on capital gains obviously creates a strong incentive for wealthy individuals to invest their capital in a way that will yield capital gains. What incentive is there for a wealthy individual to obtain ordinary income, taxable perhaps at 90%, when the maximum rate that he will have to pay on a capital gain is 25%? The investment policies of the purchasers of Lithomat stock, discussed in Chapter II, must be typical of large numbers of wealthy investors. It is quite possible that the over-all effect of the existing personal tax structure may be to drive funds toward such highly venturesome enterprises as Lithomat, Lockheed (in 1933), and Polaroid, rather than to make outside capital less accessible to these companies. But as these companies mature to the point where their securities are purchased principally for their dividend yield, rather than for capital appreciation, the personal tax structure would tend increasingly to penalize investments in them.

To avoid misunderstanding, it should perhaps be repeated that the above comments on the favorable investment incentives resulting from the present tax treatment of capital gains do not constitute an endorsement of this policy. Before making recommendations for national tax policy it would be necessary to consider the over-all economic effect of tax policies on the entire economy rather than merely the effect of these policies on growing enterprises alone.

Furthermore, the economic effect of taxes is not the only criterion which must be considered in the formulation of national tax policy. For instance, as the Committee for Economic Development has stated, "a strong argument — from the point of view of equity — can be made for taxing capital gains like other income."[1] There is, indeed, something anomalous about taxing at 25% the capital gain from stock market speculation of an individual with a net income of, say, $100,000, while at the same time taxing the wages of an unmarried worker in excess of about $550 at 23%!

One compromise between the favorable economic incentives of low capital gains rates and the injustices resulting from such rates would be to restrict the favorable tax treatment to gains on assets held for more than, say, two or three years in place of the six months' holding requirement of the present law. Such a limitation might even siphon investment funds more directly toward genuine new developments by decreasing the incentive toward stock market speculation provided by the present law. Even this compromise, however, would grant favorable tax treatment to many capital gains not directly contributing to new investment by business enterprise. It should also be noted that two devices could be used to mitigate the harmful effects of very high surtaxes on the amount of funds potentially available for risky investments. Surtaxes could be lowered. Or methods of avoiding heavy surtaxes, such as tax-exempt securities, for instance, could be abolished.

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[1] *A Postwar Federal Tax Plan for High Employment*, Proposed by The Research Committee of the Committee for Economic Development, August, 1944, pp. 31-32.

CHAPTER V

Business Expansion from Retained Earnings

SUMMARY OF CONCLUSIONS

1. Retained earnings have long been a major source of funds for financing the growth of American industrial corporations.
2. Retained earnings are a more important source of funds for small, growing companies than for large, established corporations.
3. The retained earnings of profitable small corporations constitute on the average a much larger percentage of their net worth, and incidentally also of their total assets, than do the retained earnings of large corporations.

ANALYSIS

One of the principal conclusions of the preceding chapter was that retained earnings are a particularly important source of funds from the point of view of business management. This chapter surveys retained earnings from another point of view — their statistical importance, especially as among different size-classes of corporations.[1]

Retained earnings have long been recognized as a major source of funds for financing the growth of American industrial corporations. This statement scarcely need be supported in detail; its validity is generally admitted. For instance, A. H. Hansen describes the typical method of business growth in the nineteenth century as follows:

> ...Typically, an energetic and ambitious young man, living in an environment of rapid expansion, vast unexploited

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[1] The relative importance of retained earnings and retained funds for different size-classes of corporations will be analyzed in a separate study by Mr. Lintner. Therefore this chapter merely summarizes the points of immediate relevance to the present study.

> natural resources, rapid growth of population, rapid extension into new territory, and rapid changes in techniques, found an opportunity to take advantage of the highly dynamic factors in such an economy. Typically, the future captain of industry or financier had the capacity for hard work, the capacity to accumulate small savings out of a very small salary or income, and the imagination to see possibilities for profit in the rapidly changing scene about him. Typically, he made a small beginning with his own resources and, not infrequently, the profits springing from the new enterprise or from the exploitation of virgin resources furnished the entire capital for a giant new industry. Again and again great new industries and the private fortunes to which they gave rise have grown almost exclusively out of profits plowed back into the enterprise.[1]

This experience has been repeated in the Twentieth Century. Indeed, the automobile industry is perhaps the classic example of a rapidly growing industry financed almost entirely from retained earnings. The industry grew from meager beginnings around 1900 to a prominent position in the economy a quarter of a century later. In fact, many economists attribute the industrial prosperity of this period largely to the rise of the automobile industry. To quote Hansen once more:

> Automobile production, from only 4,000 units in 1900, rose to...5,600,000 in 1929. Garages, repair shops, and service stations multiplied throughout the country. Thus, the automobile industry not only fostered gigantic production plants, ...but also opened opportunity for thousands of small business units.... Major subsidiary industries were created or expanded on the tide of the vast purchasing power of the automobile industry, including such giants as Petroleum, Rubber, Glass Plate, and Steel. Finally, outlays on public roads, largely induced by the rise of the automobile, reached the figure of 9.9 billions in the decade of 1920-29.[2]

Five of the eight dominant producers of automobiles in 1926 had financed their growth almost exclusively from retained earnings. Only three of the major automobile manufacturers — Packard, Studebaker, and General Motors — had relied significantly on the financial markets to raise their equity capital. Retained earnings accounted for over 50% of the net worth of even these three companies by the end of 1926.[1]

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[1] A. H. Hansen, *Fiscal Policy and Business Cycles* (New York, W. W. Norton & Company, Inc., 1941), p. 367.

[2] Ibid., p. 41.

Retained earnings have continued to be a major source of funds for business expansion in more recent years. For instance, an analysis of the growth of 72 representative, well-known corporations during the 1920's shows that more than one-third of these companies financed their growth *entirely* from retained earnings and approximately three-fourths financed more than one-half their expansion from retained earnings.[2] Thus, even in the 1920's when outside financing through security issues was at its peak, most of the growth of these large corporations was financed from retained earnings.

But reliance on retained earnings has not been limited to large corporations. On the contrary, the available evidence indicates that retained earnings are a more important source of funds for small, growing firms than for large, established corporations. In the first place, as Exhibits 7 and 8 show, profitable small firms on the average earn a higher rate of profit on their net worth than do large firms.[3] Secondly, profitable small firms in general pay out a smaller percentage of their income as dividends than do large corporations. This relationship, as Exhibits 9 and 10 show, is highly consistent and holds in all phases of the business cycle. From these two relationships a third, shown in Exhibits 11 and 12, may be deduced: *the retained earnings of profitable small corporations constitute on the average a much larger percentage of their net worth, and incidentally also of their total assets, than do the retained earnings of large corporations.* Thus, consistently profitable small firms appear to be able to finance a more rapid rate of growth from retained earnings than do profitable large firms.

Indeed, if small, growing firms are to challenge successfully the position of large, established corporations, they must grow

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[1] L. H. Seltzer, *A Financial History of the American Automobile Industry* (Boston, Houghton Mifflin Company, 1928).

[2] O. J. Curry, *Utilization of Corporate Profits in Prosperity and Depression* (Ann Arbor, University of Michigan Business Studies, 1941), pp. 34-41.

[3] W. L. Crum, *Corporate Size and Earning Power* (Cambridge, Harvard University Press, 1939). There is some evidence, however, to indicate that for some industrial groups this relationship is somewhat less consistent in later years than in the years 1931-1936 covered by Professor Crum's study.

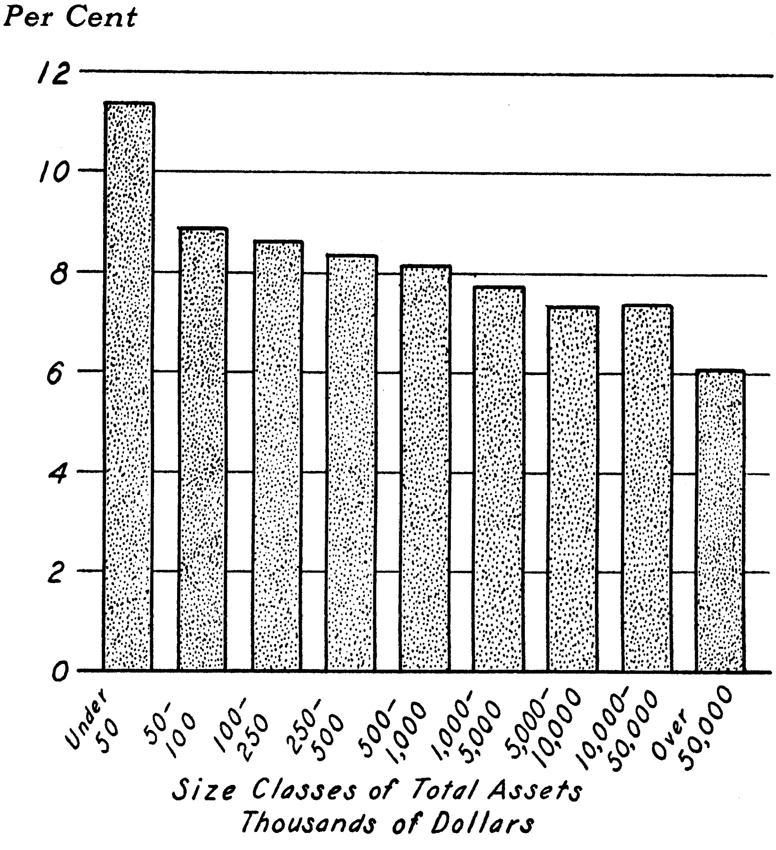
EXHIBIT 7. NET PROFITS AFTER TAXES AS A PERCENTAGE OF NET WORTH, CORPORATIONS WITH NET INCOME, 1931-1940

(Asset Size Classes in Thousands of Dollars)

Years	*Under $50*	*$50 to $100*	*$100 to $250*	*$250 to $500*	*$500 to $1,000*	*$1,000 to $5,000*	*$5,000 to $10,000*	*$10,000 to $50,000*	*$50,000 and over*	*All Classes*
1931	11.6	7.9	7.0	6.8	6.6	6.5	7.0	7.0	7.0	7.0
1932	8.7	6.3	6.1	6.0	5.9	5.6	5.9	5.9	5.4	5.6
1933	8.6	6.9	6.9	7.1	7.1	6.7	6.5	6.7	4.7	5.7
1934	10.6	8.6	8.4	8.3	8.1	7.5	7.3	6.9	5.7	6.7
1935	11.1	9.3	9.2	9.1	9.1	8.8	8.0	8.5	6.9	7.9
1936	13.2	10.7	11.0	10.2	9.9	9.3	8.7	8.3	6.3	7.8
1937	13.4	10.1	9.8	9.5	9.2	8.9	7.9	8.1	6.2	7.4
1938	11.4	8.7	8.2	7.7	7.6	6.8	6.2	6.3	5.1	5.7
1939	12.2	9.8	9.4	9.1	8.8	8.4	7.6	7.7	6.1	7.0
1940	12.8	10.4	10.0	9.7	9.4	9.1	8.1	8.0	6.9	7.5
Average	11.36	8.87	8.60	8.35	8.17	7.76	7.32	7.34	6.03	6.83

SOURCE: Computed from *Statistics of Income*. Data include all corporations with statutory net income and submitting balance sheets. Net profits include tax-exempt income. Net worth is taken at the end of the year. Surplus reserves are excluded in years prior to 1937.

EXHIBIT 8. NET PROFITS AFTER TAXES AS A PERCENTAGE OF NET WORTH, CORPORATIONS WITH NET INCOME, 1931-1940 AVERAGE



SOURCE: Computed from *Statistics of Income*.

more rapidly than their larger competitors. Moreover, if the maintenance of a vigorous, competitive economy is accepted as desirable, it is important that they be able to do so.

In still another respect, small, rapidly growing enterprises are often more dependent on retained earnings than are large, established firms. The latter class of firms generally have large

EXHIBIT 9. RETAINED EARNINGS AS A PERCENTAGE OF NET PROFITS AFTER TAXES, CORPORATIONS WITH NET INCOME, 1931-1940

(Asset Size Classes in Thousands of Dollars)

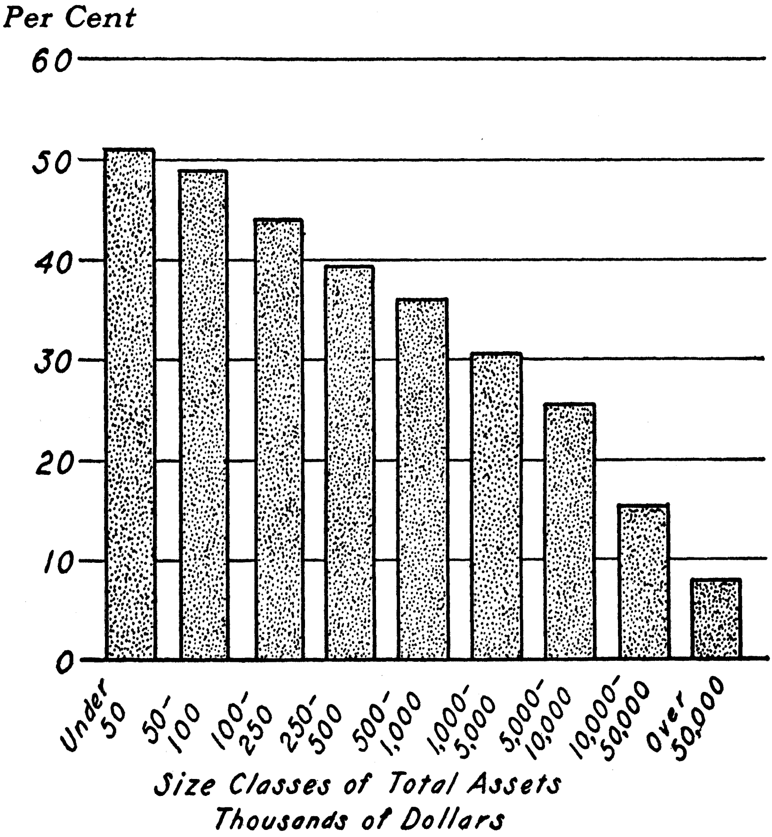
Years	*Under $50*	*$50 to $100*	*$100 to $250*	*$250 to $500*	*$500 to $1,000*	*$1,000 to $5,000*	*$5,000 to $10,000*	*$10,000 to $50,000*	*$50,000 and over*	*All Classes*
1931	57.3	47.8	39.1	32.1	26.4	21.5	13.9	11.1	3.7*d*	9.6
1932	39.9	31.5	31.6	28.8	26.1	20.8	12.6	7.6	8.9*d*	4.3
1933	64.0	66.5	61.4	61.3	56.5	47.1	39.4	22.2	2.5*d*	24.0
1934	53.7*	57.1	52.6	45.5	34.9	25.8	28.5	3.5	13.9	19.7
1935	56.4	52.0	48.5	44.5	34.7	28.2	20.5	8.0	19.8	23.0
1936	35.8	28.4	23.8	22.7	25.8	25.9	22.3	15.6	4.9	15.1
1937	30.4	29.4	24.1	22.8	23.2	22.2	20.7	16.0	8.3	15.1
1938	50.6	54.8	48.3	39.3	37.8	29.5	23.7	16.8	7.3	19.2
1939	62.0	63.1	55.6	46.1	44.6	37.8	33.9	24.2	18.3	28.8
1940	62.2	59.2	56.4	51.2	50.1	44.3	39.0	30.1	22.3	33.2
Average	51.13	48.98	44.14	39.43	36.01	30.31	25.45	15.51	7.97	19.20

*d*Indicates an excess of dividends over net profits after taxes.

*This item represents nonfinancial corporations only, because of the abnormal dividends paid by financial corporations of this size in 1934.

SOURCE: Computed from *Statistics of Income.*

EXHIBIT 10. RETAINED EARNINGS AS A PERCENTAGE OF NET PROFITS AFTER TAXES, CORPORATIONS WITH NET INCOME, 1931-1940 AVERAGE



SOURCE: Computed from *Statistics of Income*.

noncash expenses, of which depreciation and depletion charges are probably most important. These noncash expenses, if earned, would provide a considerable flexibility of operations to large corporations even if corporate profits were taxed at a very high rate. The receipts against which these expenses are charged can be used to introduce new products and processes

EXHIBIT 11. RETAINED EARNINGS AS A PERCENTAGE OF NET WORTH, CORPORATIONS WITH NET INCOME, 1931-1940

(Asset Size Classes in Thousands of Dollars)

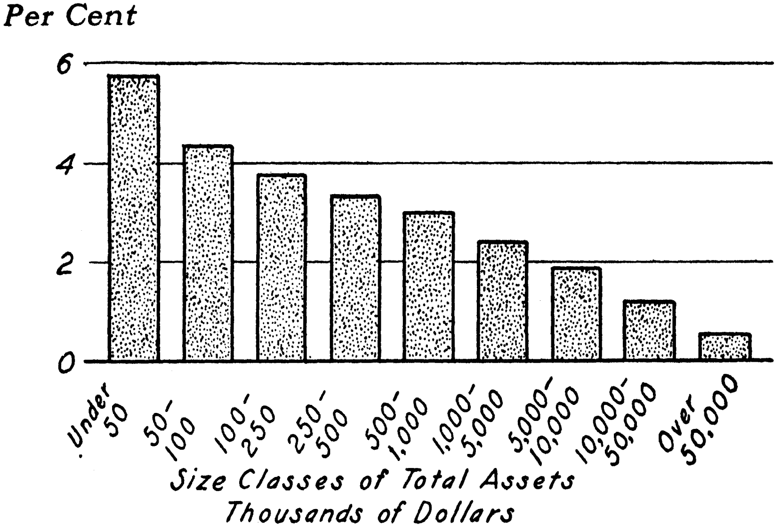
Years	*Under $50*	*$50 to $100*	*$100 to $250*	*$250 to $500*	*$500 to $1,000*	*$1,000 to $5,000*	*$5,000 to $10,000*	*$10,000 to $50,000*	*$50,000 and over*	*All Classes*
1931	6.6	3.8	2.7	2.2	1.7	1.4	1.0	0.8	0.3*d*	0.7
1932	3.5	2.0	1.9	1.7	1.5	1.2	0.7	0.4	0.5*d*	0.2
1933	5.5	4.6	4.3	4.4	4.0	3.2	2.6	1.5	0.1*d*	1.4
1934	5.8*	4.9	4.4	3.8	2.8	1.9	2.1	0.2	0.8	1.3
1935	6.3	4.9	4.4	4.1	3.2	2.5	1.6	0.7	1.4	1.8
1936	4.7	3.0	2.6	2.3	2.6	2.4	1.9	1.3	0.3	1.2
1937	4.1	3.0	2.4	2.2	2.1	2.0	1.6	1.3	0.5	1.1
1938	5.8	4.7	4.0	3.0	2.9	2.0	1.5	1.1	0.4	1.1
1939	7.6	6.2	5.3	4.2	3.9	3.2	2.6	1.9	1.1	2.0
1940	7.9	6.1	5.6	5.0	4.7	4.0	3.2	2.4	1.5	2.5
Average	5.78	4.32	3.76	3.29	2.94	2.38	1.88	1.16	0.51	1.33

*d*Indicates negative retained earnings resulting from an excess of dividends over net profits after taxes.

*This item represents nonfinancial corporations only, because of the radically abnormal dividends paid by financial corporations of this size in 1934.

SOURCE: Computed from *Statistics of Income.*

Exhibit 12. Retained Earnings as a Percentage of Net Worth, Corporations with Net Income, 1931-1940 Average



Source: Computed from *Statistics of Income.*

and to purchase modern plant and equipment. Particularly in times of declining prices and rapid technological advances, substantial increases in productive capacity can be financed merely by reinvesting the receipts against which depreciation charges and other noncash expenses are offset. There is convincing evidence indicating that increases in productive capacity were so financed on a large scale during the 1930's.[1]

Small companies, of course, also have funds coming available from noncash expenses. But these funds are not likely to be large enough to provide the flexibility of maneuver to small companies which they give to large companies.

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[1] See, for instance, R. P. Mack, *The Flow of Business Funds and Consumer Purchasing Power* (New York, Columbia University Press, 1941).

CHAPTER VI

Effect of Corporate Taxes on Business Expansion from Retained Earnings

Summary of Conclusions

1. A high corporate income tax, as compared with a low tax, places severe restrictions on the rate of expansion that a growing enterprise can finance from its retained earnings.

2. This restrictive effect is cumulative in character and will be greater (a) the longer the tax is in effect, (b) the higher the rate of the tax, (c) the higher the rate of profit earned by the company, and (d) the more conservative the company's dividend policy under the lower rate of tax.

3. A high corporate income tax rate, as compared with a lower rate, will reduce the internally financed expansion possible for a growing enterprise *more* than in proportion to the percentage difference in the two tax rates, provided that dividends form the same, or a larger, percentage of net income after taxes.

4. Companies paying out a large percentage of their net income as dividends may be able to maintain a given rate of expansion in spite of a tax increase by drastically reducing the net income paid out as dividend payments.

5. Highly profitable companies retaining most of their earnings to finance expansion, however, will have their internally financed growth severely restricted by a high corporate income tax even if they discontinue all dividend payments.

6. In conjunction with Chapter V, a sixth finding may be added. Since profitable small firms on the average earn a higher rate of profit and retain a larger percentage of their earnings than do profitable large firms, a high flat-rate corporate income tax would restrict the internally financed growth of small firms more severely than that of large firms.

INTRODUCTION

The preceding chapter has shown that retained earnings constitute a major source of funds for business expansion, especially for small enterprises. In view of the probability of a high postwar corporate income tax, the question naturally arises: To what extent would such a tax retard the expansion of rapidly growing firms financed from retained earnings? This chapter attempts to answer this question by contrasting (1) the growth which rapidly expanding firms could finance from retained earnings over a period of years in the absence of a high corporate income tax and (2) the growth which could be achieved with such a tax in effect.

The problem is discussed in terms of the experience of several rapidly growing companies, chosen principally from the automobile industry. To what extent would the expansion of these companies have been retarded if, say, a 40% income tax had been in effect during the years of their rapid expansion? The answer to this question obviously cannot be given simply and precisely. Nevertheless, the question is sufficiently important to warrant investigation in spite of the complexities which it raises.

ILLUSTRATIVE EXAMPLE

Before considering the experience of actual companies the basic elements of the problem can be illustrated in simple terms by examining a hypothetical example.[1] Suppose that a rapidly growing firm manufactures products for which the market is so large that its growth will not be restricted over, say, a 10-year period through an inability to sell its products. Assume that the firm starts with a net worth of $100,000 and is able to earn a net income equal to 50% of its net worth in each year. None of its net income is paid out in dividends because of the excellent opportunities for profitable expansion. Finally, the company limits its expansion to the amount which can be financed from retained earnings. Under these conditions, what would be the

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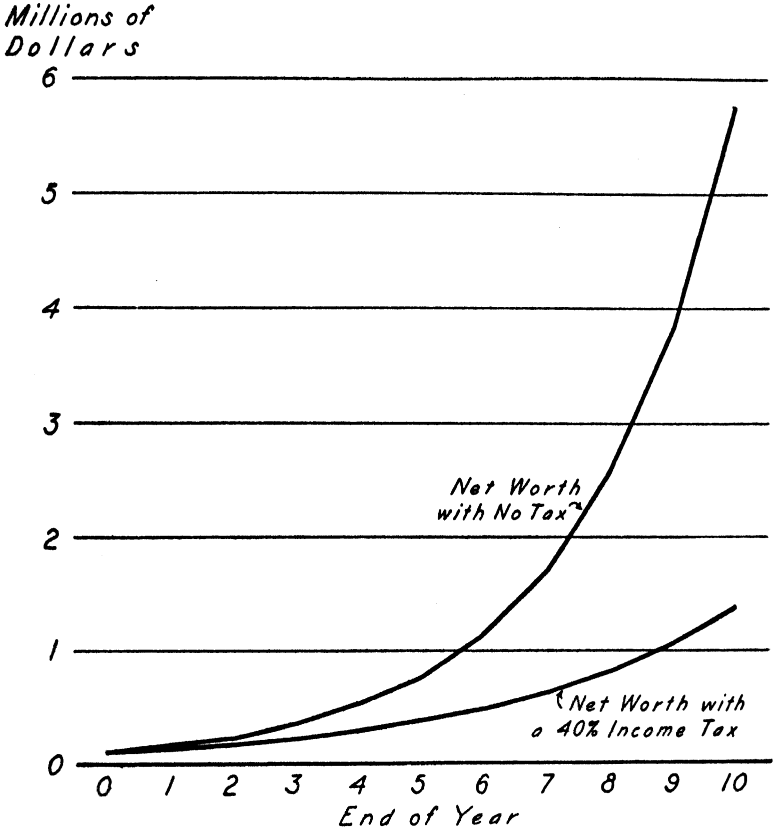
[1] The numerical illustrations of this chapter may be generalized by a mathematical analysis similar to that presented by Irving Fisher, "Paradoxes in Taxing Savings," *Econometrica*, April, 1942, pp. 147 ff.

EXHIBIT 13. CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH OF COMPANY A

	No Tax			*40% Income Tax*				
Year	*Net Worth, Beginning of Year*	*Net Income = Retained Earnings*	*Net Worth, End of Year*	*Net Worth, Beginning of Year*	*Net Income before Tax*	*Tax*	*Net Income after Tax = Retained Earnings*	*Net Worth, End of Year*
1	$ 100,000	$ 50,000	$ 150,000	$ 100,000	$ 50,000	$ 20,000	$ 30,000	$ 130,000
2	150,000	75,000	225,000	130,000	65,000	26,000	39,000	169,000
3	225,000	112,500	337,500	169,000	84,500	33,800	50,700	219,700
4	337,500	168,750	506,250	219,700	109,850	43,940	65,910	285,610
5	506,250	253,125	759,375	285,610	142,305	57,122	85,683	371,293
6	759,375	379,688	1,139,063	371,293	185,647	74,259	111,388	482,681
7	1,139,063	569,532	1,708,595	482,681	241,341	96,536	144,805	627,486
8	1,708,595	854,298	2,562,893	627,486	313,743	125,497	188,246	815,732
9	2,562,893	1,281,447	3,844,340	815,732	407,866	163,146	244,720	1,060,452
10	3,844,340	1,922,170	5,766,510	1,060,452	530,226	212,090	318,136	1,378,588
Total		$5,666,510			$2,130,978	$852,390	$1,278,588	

EXHIBIT 14. CUMULATIVE EFFECT OF A 40% INCOME TAX ON THE NET WORTH OF COMPANY A

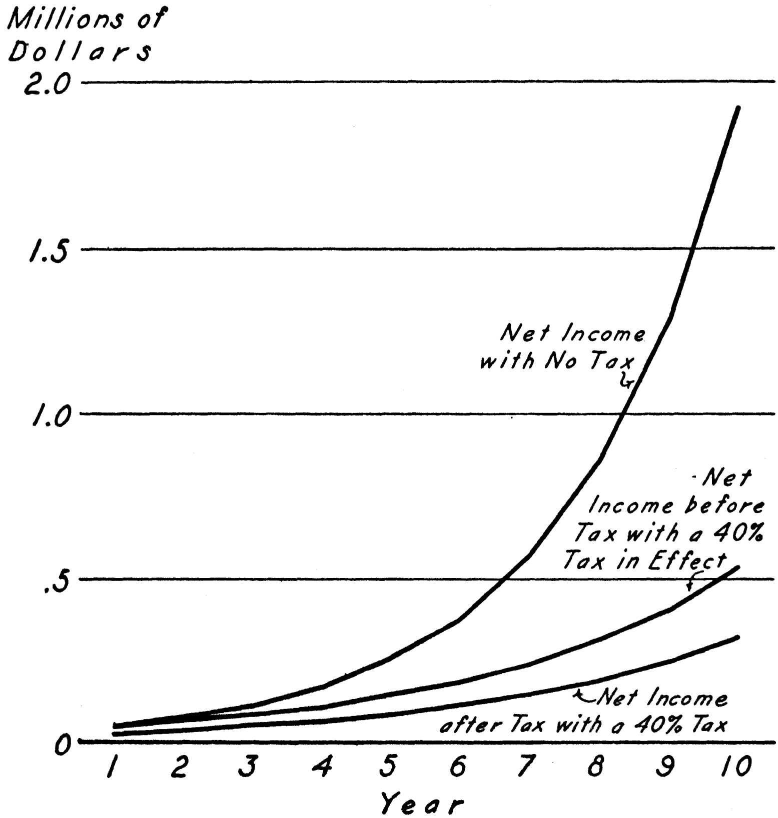


SOURCE: Data from Exhibit 13.

growth of the company over a 10-year period (a) if no corporate tax were in effect, and (b) if a 40% tax were in effect throughout the period and if the full amount of the tax were borne by the company?

As shown in Exhibits 13 and 14, the results are striking. After 10 years of growth with no corporate tax in effect the company — let us call it Company A — would have accumu-

EXHIBIT 15. CUMULATIVE EFFECT OF A 40% INCOME TAX ON THE NET INCOME OF COMPANY A



SOURCE: Data from Exhibit 13.

lated a net worth of more than $5,750,000. With a 40% tax in effect throughout the period Company A would have attained a net worth of only $1,375,000. In other words, the cumulative effect of a 40% tax on Company A, operating over a 10-year period, would have reduced its expansion to less than one-fourth of the size which would have been attained in the absence of the tax.

The explanation for this result is, of course, obvious. In each year the tax will reduce the net income available for reinvestment in the company. The net income of each succeeding year, in turn, will be reduced since less capital will be available on which to earn profits. In each succeeding year taxes will take another bite out of earnings, diminishing still further the subsequent expansion of the company from retained earnings. This process will be repeated, year after year, with the restrictive effect of the tax becoming cumulatively more severe.

As shown in Exhibit 15, with a 40% tax in effect the net income before taxes of Company A would be reduced, after 10 years of growth, to approximately one-fourth of the net income which would have been earned with no tax in effect. Its net income *after* taxes, on the same assumptions, would have amounted to less than one-sixth of what it would have been with no tax.

The specific numerical results of this illustration depend on the level of the assumed tax rate, the length of time the tax is in effect, and the percentage rate of income earned on net worth. In general, the restrictive effect of the tax will be relatively more severe (a) the higher the tax rate, (b) the longer the tax is in effect, and (c) the larger the rate of profit earned on net worth.

Thus far, Company A has been assumed not to pay any dividends. The results would not be greatly altered, however, if Company A had paid out a small part of its net income as dividends. Suppose, for instance, that it paid in each year a dividend equal to one-fourth of its net income after taxes. As Exhibit 16 shows, after 10 years of growth with a 40% tax in effect, the net worth of Company A would have been less than one-third of that which would have been accumulated with no tax in effect. Similarly, the net income before taxes of Company A would have been about one-third as large with a 40% tax as with no tax in effect; its retained earnings would have been only about one-fifth as large in the tenth year. Clearly, the payment of a moderate rate of dividends, at least, would not greatly affect the *relative* rate of growth of the firm with o without the tax in effect.

The payment of dividends would, however, retard the ab solute growth of the company from retained earnings much

EXHIBIT 16. CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH OF COMPANY A, WITH DIVIDENDS EQUAL TO 25% OF NET INCOME

No Tax

Year	*Net Worth, Beginning of Year*	*Net Income before Tax = Net Income after Tax*	*Dividends*	*Retained Earnings*	*Net Worth, End of Year*
1	$100,000	$ 50,000	$ 12,500	$ 37,500	$137,500
2	137,500	68,750	17,188	51,562	189,062
3	189,062	94,531	23,633	70,898	259,960
4	259,960	129,980	32,495	97,485	357,445
5	357,445	178,723	44,681	134,042	491,487
6	491,487	245,744	61,434	184,310	675,797
7	675,797	337,899	84,475	253,424	929,221
8	929,221	464,610	116,153	348,457	1,277,678
9	1,277,678	638,839	159,710	479,129	1,756,807
10	1,756,807	878,404	219,601	658,803	2,415,610
		$3,087,480	$771,870	$2,315,610	

40% Income Tax

Year	*Net Worth, Beginning of Year*	*Net Income before Tax*	*Income Tax*	*Net Income after Tax*	*Dividends*	*Retained Earnings*	*Net Worth, End of Year*
1	$100,000	$ 50,000	$ 20,000	$ 30,000	$ 7,500	$ 22,500	$122,500
2	122,500	61,250	24,500	36,750	9,188	27,562	150,062
3	150,062	75,031	30,012	45,019	11,255	33,764	183,826
4	183,826	91,913	36,765	55,148	13,787	41,361	225,187
5	225,187	112,594	45,138	67,456	16,864	50,592	275,779
6	275,779	137,890	55,156	82,734	20,684	62,050	337,829
7	337,829	168,915	67,566	101,349	25,337	76,012	413,841
8	413,841	206,920	82,768	124,152	31,038	93,114	506,955
9	506,955	253,478	101,391	152,087	38,022	114,065	621,020
10	621,020	310,510	124,204	186,306	46,577	139,729	760,749
		$1,468,501	$587,500	$881,001	$220,252	$660,749	

would the payment of taxes. By comparing Exhibits 13 and 16, for instance, it may be seen that the payment of dividends equal to one-fourth of net income in each year, over a 10-year period, would restrict the net worth of Company A to less than one-half of the net worth that would have been accumulated if Company A had retained its entire net income in each year.

EXAMINATION OF ACTUAL CASES

How would the cumulative restrictive effect of a high tax on corporate profits have affected the expansion from retained

EXHIBIT 17. SUMMARY OF THE GROWTH RECORDS OF THREE AUTOMOBILE COMPANIES AND ONE AIRCRAFT COMPANY FOR SELECTED PERIODS

Name of Company	*Period Studied*	*Net Worth (In thousands)* *Beginning*	*Ending*	*Average Rate of Profit Earned Before Taxes**	*Average Rate of Tax Paid†*	*Average Rate of Dividends Paid‡*	*Average Rate of Growth*
Douglas Aircraft Company	1923–28	$ 63	$ 1,310	75.8%	12.7%	2.0%	65.8%
Hudson Motor Car Company	1910–15	99	4,036	103.4%	1.0%	18.5%	85.5%
Packard Motor Car Company	1905–14	188	13,863	65.2%	0.6%	20.1%	53.7%
Nash Motors Company	1917–29	5,876	53,658	48.3%	11.5%§	65.2%‖	18.6%

*Modified geometric mean of percentage rates of profit earned on net worth.

†One minus geometric mean of ratios of profits after taxes to profits before taxes.

‡One minus geometric mean of ratios of retained earnings to profits after taxes.

§Computed after adjustments explained in footnote 1 below.

‖Redemptions of stock dividends within a three-year period were considered to be cash dividends.

SOURCE: Computed from data in annual reports, supplemented for earlier years by data given in L. H. Seltzer, *A Financial History of the American Automobile Industry* (Boston, Houghton Mifflin Company, 1928).

earnings of companies with outstanding growth records over a period of years? In an effort to answer this question four companies — the Hudson Motor Car Company, the Packard Motor Car Company, the Nash Motors Company, and the Douglas Aircraft Company, Inc. — were selected for intensive study. These companies were chosen because (1) they illustrate different aspects of the problem; (2) they all grew at a rapid rate largely from retained earnings; and (3) during the periods studied they were relatively free from large surplus adjustments which would have complicated the statistical analysis of their experience.

The actual growth record of these companies over selected periods of their history is shown in Exhibit 17. During the years studied the average tax rates paid by the four companies ranged from less than 1% to about 12.5%.[1]

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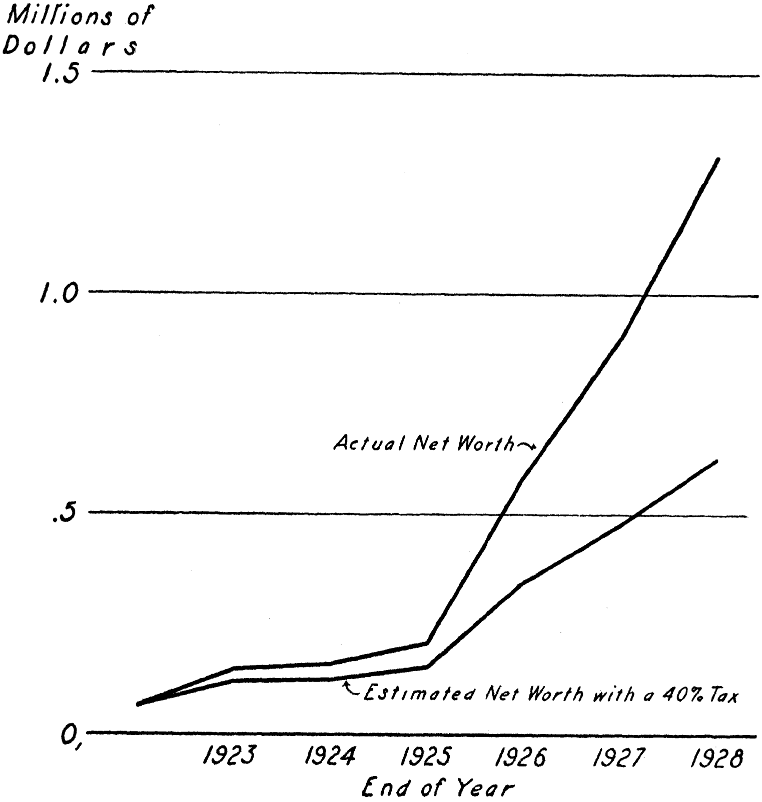
[1] One adjustment in the actual records was made for Nash. The period studied for Nash included the First World War, when net income before taxes and wartime

(*Footnote continued on next page*)

EXHIBIT 18A. CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: DOUGLAS AIRCRAFT COMPANY



Estimates have been made of the growth that these companies could have financed from retained earnings on the following conditions:

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taxes were both abnormally high. In order to eliminate the effect of these abnormal years, arbitrary figures were used for Nash's net income before taxes for the years 1917 through 1920. The figures used were net income after the deduction of the excess profits taxes but *before* the deduction of the normal income taxes paid in these years. This procedure appears to give a reasonable estimate of the peacetime profits that could have been earned had there been no war. The adjustment, however, does not affect the net income after tax or the growth of the company's net worth as recorded on its books and used in these computations.

Exhibit 18B. Data Illustrating Cumulative Effect of a 40% Income Tax on Growth: Douglas Aircraft Company

	1923	*1924*	*1925*	*1926*	*1927*	*1928*
(1) Actual net worth*	$147	$155	$203	$579	$895	$1,310
(2) Est. net worth with 40% tax*	$120	$125	$152	$346	$476	$626
(3) Ratio of (2) to (1) in percentages	81.7%	80.6%	74.9%	59.8%	53.2%	47.8%
(4) Difference between (2) and (1)*	$27	$30	$51	$233	$419	$684
(5) Cumulated tax at 40% rate*	$39	$41	$59	$188	$285	$385
(6) Rate of profit earned on net worth	152.4%	6.1%	35.5%	212.3%	70.3%	52.8%
(7) Dividends as percentage of profit after tax	0	0	0	0	11.2%	0

*In thousands of dollars.

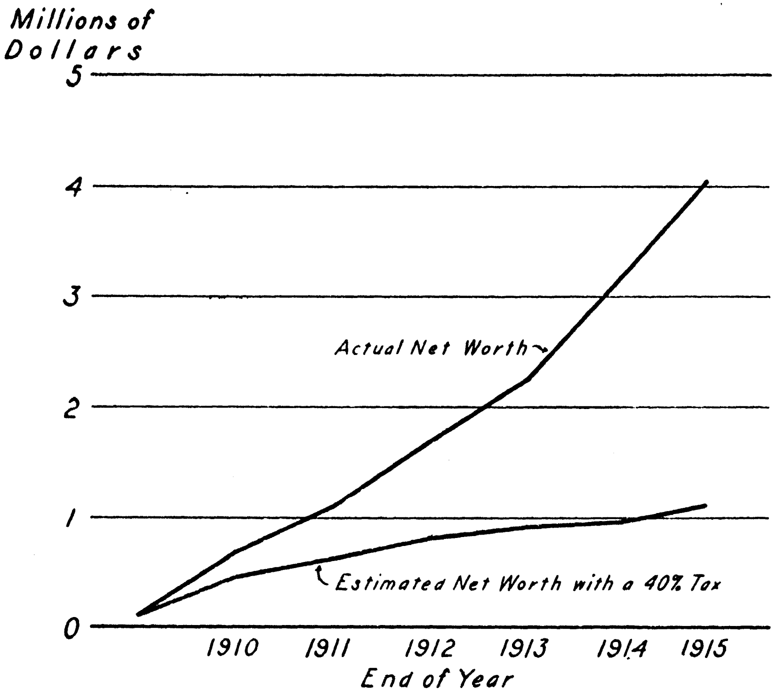
Source: Columns 1, 6, and 7. Annual Reports of company.

Columns 2 and 5. A comparative statement of net worth (including data on net worth at the beginning of the year, profits before taxes, federal taxes paid, profits after taxes, cash dividends paid, retained earnings, direct charges to surplus, cash sales on retirements of capital stock, and net worth at end of year) was reconstructed on the basis of the six conditions stated in the text to yield these estimates.

1. That a corporate tax at a flat rate of 40% would be paid in each year in place of the statutory rates actually paid by the four companies.
2. That the full amount of the corporate tax would be borne by the company and by its shareholders; that is, none of it would be passed on to consumers or back to wage earners.
3. That the demand for the companies' products would not be affected by the level of the corporate tax.
4. That the percentage rate of net income before taxes earned on net worth would be the same as that actually shown on the companies' books in each year.
5. That cash dividends would bear the same ratio to net income after taxes as shown on the companies' books.
6. That new issues and retirements of stock and direct charges to surplus would be made in the same dollar amounts.

The reasonableness of these conditions is discussed in the addendum to this chapter (pp. 87-88). Obviously, it is impossible to make precise estimates of the effect which a 40%

EXHIBIT 19A. CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: HUDSON MOTOR CAR COMPANY.



tax would have had on business expansion that actually took place when much lower taxes were in existence. Nevertheless, the following calculations do illustrate basic principles concerning the effect of a high corporate tax.

The estimated expansion which each of these companies could have achieved with a 40% tax in effect is shown in Exhibits 18 through 21. The severe restriction imposed by the tax is clearly evident. For instance, Hudson in a six-year period and Packard in ten years would have had their growth limited to approximately 25% of that actually attained in years when corporate taxes were negligible. The expansion of Douglas in a six-year period and of Nash in thirteen years would have been held to about 40% of that actually achieved.

EXHIBIT 19B. DATA ILLUSTRATING CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: HUDSON MOTOR CAR COMPANY

	1910	*1911*	*1912*	*1913*	*1914*	*1915*
(1) Actual net worth*	$663	$1,090	$1,690	$2,247	$3,193	$4,036
(2) Est. net worth with 40% tax*	$452	$614	$808	$923	$955	$1,101
(3) Ratio of (2) to (1) in percentages	68.2%	56.3%	47.8%	41.1%	29.9%	27.3%
(4) Difference between (2) and (1)*	$211	$476	$882	$1,324	$2,238	$2,935
(5) Cumulated tax at 40% rate*	$237	$362	$549	$711	$920	$1,093
(6) Rate of profit earned on net worth	599.0%	68.9%	76.2%	50.1%	56.6%	45.2%
(7) Dividends as percentage of profit after tax	8.5%	0	24.9%	26.2%	3.0%	40.4%

*In thousands of dollars.

SOURCE: Columns 1, 6, and 7. Annual Reports of the company and Seltzer, op. cit., pp. 255-258.

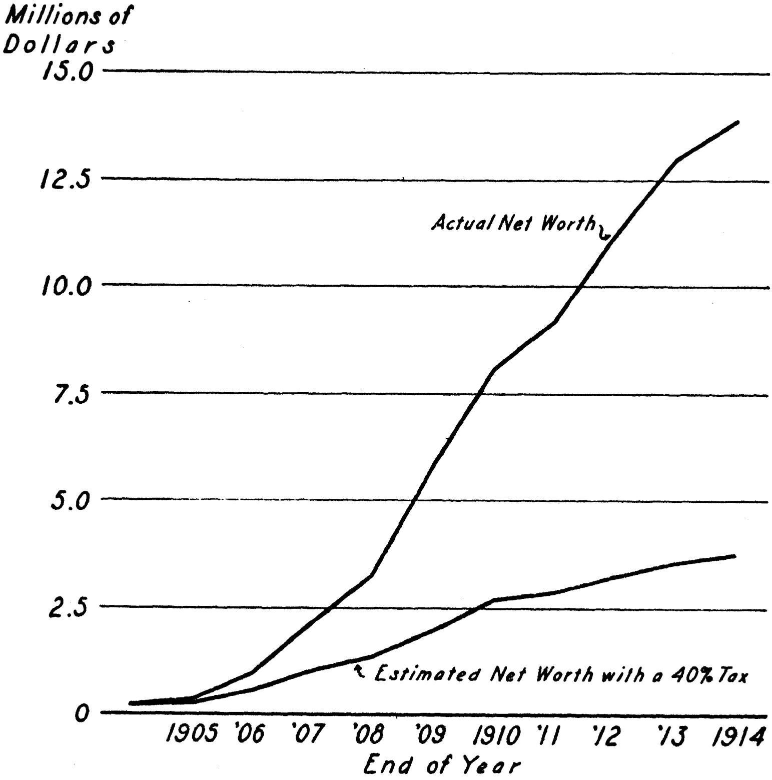
Columns 2 and 5. See explanation, Exhibit 18B, p. 79.

The question naturally rises: Why would the growth of some of these companies have been restricted much more severely by a 40% tax than would that of others? The answer depends on the interaction of at least four factors:

(a) *The extent to which the tax rate is increased.* Douglas and Nash actually paid average tax rates of about 12% during the years in which their growth was studied. Consequently, for these two companies the assumed 40% tax rate would represent a tax increase of only about 28 percentage points. For Packard and Hudson, on the other hand, the assumed 40% rate represents a tax increase of about 39 percentage points over the average tax rate of about 1% in effect during the years in which these companies were studied.

(b) *The rate of profits earned.* The cumulative effect of high corporate tax would reduce net income, in relation to net worth, more severely for a firm with a high rate of profit than for a firm with a low profit rate. Consequently, the restrictive effect of a high tax will be greater for a company with a high rate of profit than for one with a low profit rate. In this

EXHIBIT 20A. CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: PACKARD MOTOR CAR COMPANY



respect, a 40% tax rate would have been most restrictive on Hudson, since Hudson earned a markedly higher rate of profit than did the other three companies.

(c) *The length of time for which the tax is in effect.* The preceding hypothetical example indicated that the restriction on growth resulting from the tax would be cumulative in its effect. This fact is confirmed by the study of actual cases. As Exhibits 18 through 21 indicate, for each of the four companies the reduction in net worth, measured either in dollar amounts or in percentage terms, becomes increasingly severe the longer the

EXHIBIT 20B. DATA ILLUSTRATING CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: PACKARD MOTOR CAR COMPANY

	1905	*1906*	*1907*	*1908*	*1909*
(1) Actual net worth*	$339	$931	$2,122	$3,252	$5,843
(2) Est. net worth with 40% tax*	$279	$571	$1,009	$1,332	$1,975
(3) Ratio of (2) to (1) in percentages	82.3%	61.3%	41.5%	47.0%	33.8%
(4) Difference between (2) and (1)*	$60	$360	$1,113	$1,920	$3,868
(5) Cumulated tax at 40% rate*	$87	$324	$664	$933	$1,410
(6) Rate of profit earned on net worth	114.9%	213.0%	148.9%	66.6%	89.4%
(7) Dividends as percentage of profit after tax	30.1%	18.0%	14.1%	20.0%	10.0%

	1910	*1911*	*1912*	*1913*	*1914*
(1) Actual net worth*	$8,060	$9,116	$11,199	$13,006	$13,863
(2) Est. net worth with 40% tax*	$2,679	$2,885	$3,227	$3,543	$3,739
(3) Ratio of (2) to (1) in percentages	33.2%	31.6%	28.8%	27.2%	26.9%
(4) Difference between (2) and (1)*	$5,381	$6,231	$7,972	$9,463	$10,124
(5) Cumulated tax at 40% rate*	$1,789	$1,972	$2,243	$2,495	$2,621
(6) Rate of profit earned on net worth	48.0%	17.1%	23.5%	19.5%	8.9%
(7) Dividends as percentage of profit after tax	20.2%	24.9%	16.0%	16.2%	30.6%

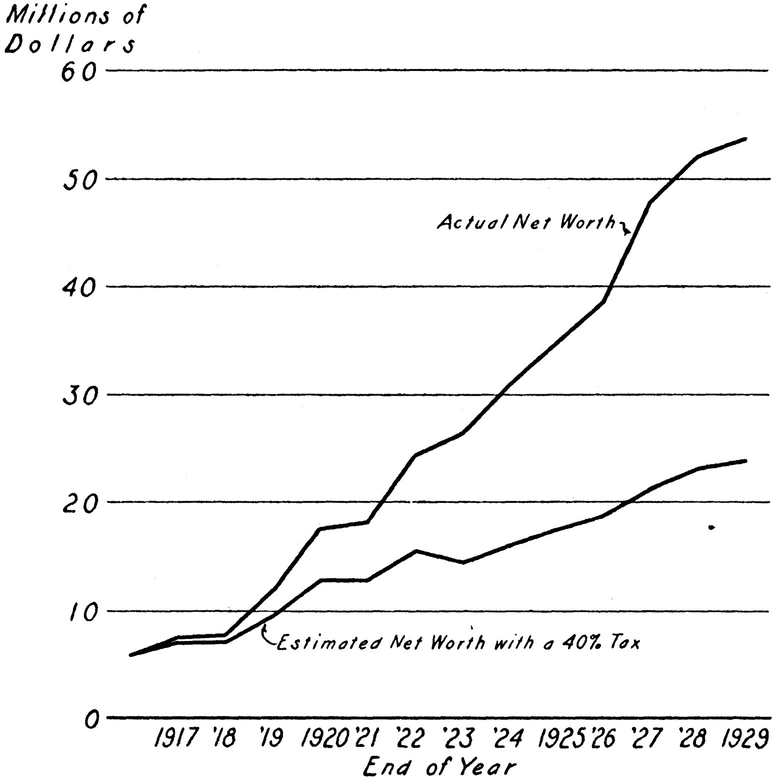
*In thousands of dollars.

SOURCE: Columns 1, 6, and 7. Annual Reports of the company and Seltzer, op. cit., pp. 247-252.
Columns 2 and 5. See explanation, Exhibit 18B, page 79.

tax is in effect. In fact, after a few years of growth the percentage reduction in the net worth of each company is much greater than the 40% tax rate. In other words, over a brief period of years a 40% tax rate will reduce internally financed growth by much more than 40%.

(d) *The percentage of net income after taxes paid out as dividends.* The smaller the percentage of net income paid out as dividends, the more restrictive will be the effect of a higher tax. To put the matter differently, if a large percentage of net income is

EXHIBIT 21A. CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: NASH MOTORS COMPANY



paid out as dividends, the principal effect of an increased tax rate will be to curtail dividend payments rather than to restrict the rate of business growth. Compare, for instance, the experience of Nash and Douglas. Nash paid out a much larger percentage of its net income in dividends than did Douglas. Nash also earned a much smaller percentage rate of profit. Consequently, the cumulative effect of a 40% tax on the earnings of Nash for a thirteen-year period would have restricted its growth only to the same extent that the expansion of

EXHIBIT 21B. DATA ILLUSTRATING CUMULATIVE EFFECT OF A 40% INCOME TAX ON GROWTH: NASH MOTORS COMPANY

	1917	*1918*	*1919*	*1920*	*1921*	*1922*	*1923*	*1924*	*1925*	*1926*	*1927*	*1928*	*1929*
(1) Actual net worth*	$ 7.5	$ 7.6	$11.8	$17.5	$18.2	$24.1	$26.2	$30.8	$34.7	$38.6	$47.6	$52.0	$53.7
(2) Est. net worth with 40% tax*	$ 6.9	$ 7.0	$ 9.6	$12.8	$12.7	$15.4	$14.2	$15.9	$17.3	$18.6	$21.6	$23.0	$23.5
(3) Ratio of (2) to (1) in percentages	92.3%	92.0%	82.0%	72.8%	70.1%	63.8%	54.2%	51.6%	49.8%	48.3%	45.4%	44.2%	43.7%
(4) Difference between (2) and (1)*	$ 0.6	$ 0.6	$ 2.1	$ 4.8	$ 5.4	$ 8.7	$12.0	$14.9	$17.4	$19.9	$26.0	$29.0	$30.2
(5) Cumulated tax at 40% rate*	$ 0.9	$ 1.5	$ 3.6	$ 6.1	$ 6.9	$ 9.4	$12.1	$14.4	$18.3	$23.7	$28.7	$33.0	$36.6
(6) Rate of profit earned on net worth	36.7%	22.4%	74.8%	66.2%	15.6%	48.7%	44.4%	40.3%	61.1%	77.8%	67.2%	49.6%	38.8%
(7) Dividends as percentage of profit after tax	21.6%	95.0%	23.0%	16.9%	47.3%	14.9%	37.3%	49.4%	76.2%	83.5%	60.2%	78.7%	90.9%

*In millions of dollars.

SOURCE: Columns 1, 6, and 7. Annual Reports of the company and Seltzer, op. cit., pp. 252-255. Redemptions of stock dividends within a three-year period were considered to be cash dividends, and profits before taxes during the war were adjusted as explained in footnote 1, pp. 77-78.

Columns 2 and 5. See explanation, Exhibit 18B, p. 79.

Douglas would have been restricted in six years — less than half the time.[1]

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[1] Since Nash paid out a large part of its net income after taxes as dividends, the cumulatively restrictive effect of the tax as related to Nash is shown largely by the reduction in dividend payments which the increased tax would have required. Under the above conditions Nash would have paid total taxes over the 13-year period at the 40% rate of about $37 million, but as a result of the tax increase from 12% to 40% its dividend payments would have been reduced by about $60

(Footnote continued on next page)

Thus far, the assumption has been made that the same *percentage* of net income after taxes would be paid out as dividends irrespective of the level of the tax rate. Under this assumption, as has been shown, a 40% tax would have severely and cumulatively reduced the internally financed growth which could be achieved by business firms with outstanding growth possibilities.

But some firms might attach such importance to the maintenance of a rapid rate of growth that they would completely eliminate their dividend payments in the face of an increased tax. As a matter of fact, Douglas, Packard, and Hudson could not have maintained their actual rate of growth even if they had paid no dividends at all. Nash, on the other hand, could have financed an even more rapid rate of growth in spite of the higher tax if it had eliminated dividend payments. Even Nash would have had to reduce its dividend payments substantially in order to maintain its actual rate of growth in the face of a tax increase of approximately 28 percentage points. It follows (1) that only companies which distribute a large percentage of their net income as dividends could maintain a rapid rate of internally financed growth in the face of sharply increased taxes and (2) that even these companies could do so only at the price of a substantial restriction in their dividend payments.

In conclusion, *emphasis must again be placed on the restrictive assumptions on which the numerical computations of this chapter have been made.* The reasonableness of these assumptions is discussed in the immediately following addendum. The authors have no illusions that precise numerical estimates can be made by the type of analysis employed in this chapter. This fact does not, however, invalidate the general principles developed in this chapter; these principles would hold even though the assumptions of the numerical computations were subject to a considerable margin of error.

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million. For companies paying out a small part of their net income as dividends, similar restrictions are shown in the growth of net worth. As a general proposition, the reduction in total net worth plus the total reduction in dividends will always be greater than the total additional taxes paid. The difference will become greater with each additional year an increased tax is in effect.

ADDENDUM TO CHAPTER VI

The specific assumptions of this chapter were selected for the following reasons:

Assumption 1: That a corporate tax rate of 40% would be paid in each year.

The figure of 40% was chosen (a) because it is the basic rate now applicable to corporate incomes; (b) because it is frequently suggested as a possible postwar rate; and (c) because it represents a substantial increase over the average tax rates paid by the above companies in the periods studied.

Assumption 2: That the full amount of the corporate tax would be borne by the company and by its shareholders.

The reasons for this assumption are discussed on pages 7-8.

Assumption 3: That the demand for the companies' products would not be affected by the level of the corporate tax.

An increase in corporate taxes would reduce the demand for a company's products by curtailing the purchasing power of other business firms and indirectly of individual consumers. These effects are ignored in the calculations, and, consequently, the restrictive effects of the tax tend to be understated.

On the other hand, increased government expenditures, debt retirements, or reductions in other taxes, made possible by an increase in the corporate tax, would have a stimulating effect. But the purpose of this chapter is to appraise the direct effects of a high corporate tax on business expansion and not to examine the separate problem of indirect economic effects such as those of increased government expenditures. In effect, the level of public expenditures is assumed to be unchanged.

In order to reach an intelligent decision on appropriate methods of financing government expenditures, the effects of different sources of revenue must be compared in terms of a common base — here implicitly assumed to be a fixed pattern and level of government expenditures. This chapter points out some of the effects of high corporate taxes which would have to be considered in making such a comparison.

Assumption 4: That the percentage rate of net income before taxes would be the same as that actually shown on the company's books.

The slower rate of growth resulting from an increased tax would obviously have an effect on the rate of profits earned by a business firm. But the direction or size of this effect is not clear.

For instance, increased profits might result from the fact that demand for the product would not have been directly reduced by the tax and higher prices consequently might have been charged for the reduced output. But these possibilities would have been limited by the diminished resources available to the firm for expenditures for advertising and for the development of sales organizations.

On the other hand, the rate of profits might have been lowered by higher unit costs resulting from smaller scales of production. Similarly, less funds would have been available to finance development work and improved techniques of production.

As a first approximation it seems reasonable to assume that these factors, plus others of a similar nature, would offset each other. However, readers desiring to substitute other rates may easily do so. Unless substantial changes are made, the general order of magnitude of the above results will not be greatly affected.

Assumption 5: That cash dividends would bear the same ratio to net income after taxes as shown on the companies' books.

This assumption was made for lack of a better basis of estimating the reaction of management to a lower profit after taxes. As noted in the text, calculations have also been made on the assumption that all dividend payments would be eliminated in order to maintain a maximum possible rate of growth from retained earnings in the face of the higher tax.

Assumption 6: That new issues and retirements of stock would be made in the same dollar amounts.

This assumption was made in order to remove in so far as possible the effect of adjustments extraneous to the purpose of these estimates. Since the companies selected for study had ralatively small amounts of new issues and surplus adjustments, this assumption has not greatly affected the results.

CHAPTER VII

Outside Sources of Funds for Business Expansion: Long-Term Funds

SUMMARY OF CONCLUSIONS

1. Briefly, the two preceding chapters have shown (a) that retained earnings have always been a principal source of funds for business expansion, and (b) that a high corporate tax would greatly restrict the amount of business expansion which can be financed from retained earnings. The higher the tax rate the more extensively will business have to rely on outside capital to finance its expansion. If outside capital is readily obtainable, this necessity may not seriously retard business expansion. On the other hand, if outside funds are difficult for growing enterprises to raise, restrictions on retained earnings resulting from a high corporate tax could have very serious repercussions on the rate of business expansion.

2. The question is therefore squarely raised: *To what extent is outside capital available to growing enterprises?* Two techniques are employed in this chapter in an effort to answer this difficult, but highly important, question. First, the experience of companies publicly seeking outside capital is surveyed. Secondly, the data on the general flow of funds to business during the last 15 years are analyzed. Neither of these approaches to the problem is wholly satisfactory, although both yield interesting results. Together, they cast grave doubt on the adequacy of the supply of venture capital to small, growing enterprises during the prewar years. If these doubts are justified, they at least constitute a danger signal in considering postwar tax policies that would force small companies to rely principally on outside capital to finance their growth.

3. In so far as the experience of companies seeking outside capital is concerned, it appears:

(a) That a substantial demand for capital on the part of small companies has gone unfilled;

(b) That small companies are at a severe competitive disadvantage in comparison with large companies in raising outside capital;

(c) That this disadvantage is in large part the result of circumstances that cannot be altered, such as the greater risks confronting small companies;

(d) That the disadvantage confronting small firms is much greater in times of business depression and market pessimism than when general business activity is at a high level and investors are optimistic; and

(e) That, in contrast to small firms, large corporations have been able to raise new capital on relatively favorable terms at least since the late 1930's.

4. In so far as the flow of long-term funds to business is concerned, the following conclusions are reached:

(a) With the exception of retained earnings, which have been discussed in preceding chapters, the savings of individuals are the most important source of funds for business growth.

(b) Large amounts of savings by individuals, potentially available to finance business expansion, are constantly accumulating in the economy both in good years and in bad years.

(c) But since 1930 the flow of individual savings directly to growing enterprises has been sharply curtailed and perhaps even reversed. Apparently large and deliberate shifts have taken place in the savings habits of individuals over the past 15 years.

(d) Individual savers have increasingly entrusted their funds to safe forms of investment such as government bonds, life insurance companies, and other major savings institutions. Funds so invested are seldom made available to companies in need of venture capital.

(e) The vast accumulation of liquid savings during the war may basically alter this trend. But available data through 1944 do not indicate an increased willingness on the part of individual savers to hold equity securities.

EXPERIENCE OF COMPANIES SEEKING OUTSIDE CAPITAL

Sales Record of Unseasoned Securities

Additional equity capital is the primary capital requirement of growing enterprises. Without adequate equity capital, the flotation of bonds is unwise and usually impossible. Moreover, the net worth position of a company is also a primary factor in determining its credit standing with respect to medium- and short-term loans. If growing firms have adequate equity capital, they can usually manage to obtain the other outside funds which they may need on reasonably favorable terms and without too much difficulty. Lacking adequate equity capital, they are almost certain to be seriously restricted in the amount of funds they can borrow and in the terms on which such funds can be obtained.

The shortage of equity capital available to small companies is illustrated by the sales record of unseasoned securities registered with the Securities and Exchange Commission from 1933 through 1939. Out of a total of 608 registered issues of unseasoned common stock, 224 reported no sales at all, and scarcely more than 20% of the amount registered was ultimately sold. Similarly, more than one-third of the 155 registered issues of unseasoned preferred stock had no sales, and less than one-fourth of the amount registered was ever sold. Sales of bonds by unseasoned companies are, of course, of minor importance. Only 54 issues of bonds and notes were reported by the Securities and Exchange Commission; of these issues, over 20% had no sales at all and less than 60% of the amount registered was sold.[1]

The significance of these statistics is difficult to evaluate. Possibly many or most of these unseasoned enterprises were unworthy of financial support. It would seem, however, that companies which went to the trouble and expense of registering a new issue must have hoped to be able to float their securities successfully. Probably the companies registering new issues were in general among the stronger group of unseasoned com-

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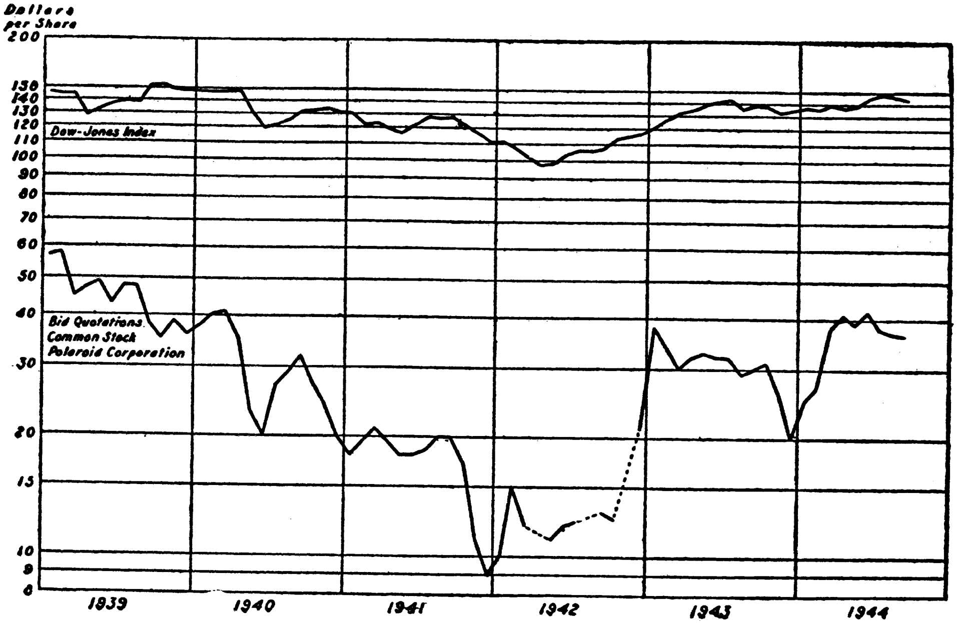
[1] Securities and Exchange Commission, *Sales Record of Unseasoned Registered Securities, 1933-39* (Washington, The Commission, June, 1941), p. 10.

EXHIBIT 22. PRICES OF POLAROID COMMON STOCK AND DOW-JONES INDEX OF 30 INDUSTRIAL STOCKS, 1939-1944*



*Since this chart was prepared both the Dow-Jones Index and the price of Polaroid common stock have risen considerably.

SOURCE: *Bank and Quotation Record* and *Survey of Current Business.*

panies. Their sales record probably was better than that of unregistered issues sold locally.

In this connection the study of the Securities and Exchange Commission comments interestingly:

> In general, sales volume of unseasoned issues tended to reflect activity in the new issue market, rising sharply in early 1936 and declining subsequently up to the middle of 1938. The ratio of sales to registrations of unseasoned issues, however, was affected by the wide fluctuations in registrations, with the result that high sales ratios prevailed more in periods of low registration volume than in periods of high sales volume. *Upon further analysis it appears that in periods of low general capital market activity the registration of unseasoned issues with very uncertain sales prospects falls off with particular sharpness.*[1] (Italics added.)

In other words, unseasoned securities can be sold in substantial volume *only* in times of generally favorable market conditions. The market for unseasoned securities is so thin and so subject to the vagaries of the capital market that it drops much more sharply in times of uncertainty and pessimism than does the market for seasoned securities. Consider, for instance, the fluctuations in the value of the common stock of the Polaroid Corporation, as shown in Exhibit 22. Relatively small fluctuations in the general level of stock prices were accompanied by extreme fluctuations in the value of Polaroid stock. Polaroid probably could not have issued new common stock on favorable terms in 1941 and 1942, when general market conditions were bad, in spite of its excellent growth prospects and its rapidly improving earnings record. But there is no guarantee that the need of small companies for additional capital will customarily coincide with favorable market conditions. On the contrary, small companies are quite likely to be in need of funds when general business conditions are unfavorable and the capital market is likely to be inactive.

No adequate data are available on unregistered capital issues — primarily small, locally distributed issues. But the virtually unanimous testimony of competent observers is that the flow of funds to small companies was at a very low level during the 1930's.[1] For instance, less than 20% of the companies reporting on their sources of long-term capital in a Department of Commerce survey relied on sales of stock or bonds; more than 45% of the companies reporting claimed that they were in need of long-term capital, but that no source of any kind was available to them.[2]

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[1] Ibid., p. 2.

Access of Large Corporations to Capital Market in 1930's

During the last half of the 1930's, at least, large industrial companies appear to have had relatively easy access to the capital market. The Dow-Jones index of 30 industrial stocks, for instance, varied within approximately the same range during most of the period 1936-1940 as in the mid-1920's. Moreover, new funds from security issues of large manufacturing companies were as high in 1937 and 1938 as in the best years of the 1920's (excluding 1929).[3] It is true that total issues of new securities for the whole decade of the 1930's were much smaller than in the 1920's. But this fact can be explained largely by the decreased demand on the part of large, established companies for outside funds during most of the 1930's.

F. Eberstadt, in a speech before the National Association of Securities Commissioners in December, 1944, has clearly stated the contrast between the problems confronting large and small companies in raising outside capital:

> In the postwar process of raising funds for re-equipping, the big well-established companies will not have serious financial problems. There is plenty of money available for investment in seasoned and safe securities and loans are readily available to them at fantastically low rates. But owners of capital and banks, like workers, have become keenly security-conscious and are timid about taking risks. The big company

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[1] John H. Cover, *Problems of Small Business* (TNEC Monograph No. 17, Washington, 1941), pp. 227, 262-263; Roy Foulke, "Risk Capital for Small and Intermediate Business" and "Postwar Problem No. 1 for Small Business: Urgent Need for Loans and Risk Capital," in *Small Business: Access to Capital*, U. S. Senate, Special Committee to Study and Survey Problems of Small Business Enterprises, Bulletin No. 15.

[2] *Survey of Reports of Credit and Capital Difficulties Submitted by Small Manufacturers* (Washington, Government Printing Office, 1935), p. 66. All manufacturers reporting had between 21 and 250 employees.

[3] See A. R. Koch, *The Financing of Large Corporations, 1920-1939* (New York, National Bureau of Economic Research, 1943), p. 103.

has not suffered from this trend. On the contrary, in a sense it has benefited, because so-called safe securities and loans have commanded constantly increasing premiums. But the opposite conclusion has prevailed for small companies and, above all, for new companies.[1]

Cost of Outside Capital

It is axiomatic that large, well-known companies have a great competitive advantage over small companies in raising outside capital. Whereas the stock of a leading manufacturing company may sell at a price-earnings ratio of from 15:1 to 25:1, the stock of a smaller, less well-known company with an established earnings record probably will sell at a price-earnings ratio of from 7:1 to 15:1.

The leading companies in an industry typically have many advantages over their smaller competitors. They are likely to be older and better known. Their securities will tend to be more widely held, thus providing a more stable, liquid market. Institutional investors can afford to purchase large blocks of their securities without risking a "lock-up." Leading companies have usually grown to the point where they can afford to pay out a large percentage of their earnings as dividends; hence their securities will sell more on a yield basis. Moreover, leading companies can usually issue preferred stocks and bonds at a low interest rate, and thereby acquire new capital without weakening the control position of the management or diluting the outstanding common stock.

On the other hand, the securities of medium-size listed companies with established earnings records typically are less well known and encounter more buyer resistance than the blue-chip equities. The market for the smaller companies will be thinner, less stable, and unsuited to the needs of many large institutional investors. As institutional investors become a more and more important source of funds, the relative disadvantage of the medium-size companies increases. These companies will also have a more difficult time selling bonds or preferred stocks; when they are able to issue senior securities, they will typically have to pay a higher return than will the blue-chip companies.

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[1] Delivered before the 27th Annual Convention of the National Association of Securities Commissioners, December 12, 1944, St. Louis, Missouri (mimeographed).

Small unlisted companies fall in still a third category. They are likely to find the acquisition of new capital costly and difficult at almost any time. They generally cannot acquire new long-term capital in sizable amounts without surrendering a substantial part of the ownership interest in the company. In many phases of the business cycle it is essentially impossible for the vast majority of small companies lacking "sex appeal" to raise equity capital on anything like satisfactory terms. Even glamorous companies — such as Polaroid, television, and aviation companies in certain periods — can usually issue securities on favorable terms only when market conditions are auspicious.

As a general observation, unseasoned issues sell on much better terms, relative to less risky securities, in bull markets than in bear markets — in times of prosperity than in times of depression. Indeed, in periods of speculative fervor, as in 1929, the speculative issue may be in a very advantageous position.

One of the greatest contributions toward removing restrictions on the availability of capital to small, unseasoned ventures would be to maintain a high level of economic activity; the indirect effects of general prosperity would be far more powerful than any specific measures short of indiscriminate public handouts which could be taken to break down the barriers between small companies and the capital market.

So much for the *terms* on which different types of companies can secure long-term capital. A more frequently discussed aspect of the problem, but one that is relatively much less important, is the dollar cost of public security issues.

Expressed as a percentage of proceeds, these costs are almost uniformly more for small companies than for large companies. In the years 1938-1941, as Exhibit 23 shows, the total cost of issuing the common stock of companies with assets of less than $1 million averaged more than 20% of the total amount issued; for companies with assets of $10 million and more, total costs ranged from 2% to 11% of the amount of the issue. Similar relationships hold, as Exhibits 23-25 indicate, for underwritten and nonunderwritten issues and for preferred stocks and bonds. For instance, in the years 1939-1941 the cost of floating underwritten bonds of companies with assets of over

EXHIBIT 23. COST OF FLOTATION FOR COMMON STOCK ISSUES EFFECTIVELY REGISTERED FOR SALE TO THE PUBLIC UNDER THE SECURITIES ACT OF 1933, BY SIZE OF ISSUER, 1938-1941

	1938		*1939*		*1940*		*1941*	
Size of Issuer (In millions)	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*
Underwritten Issues								
Under $1	9	27.3%	11	22.9%	10	22.8%	5	20.4%
$1–$5	5	20.0	9	19.5	19	15.9	11	19.9
$5–$10	2	19.2	3	11.4	3	12.9	3	12.5
$10–$50	..	...	..	...	6	10.4	3	10.2
$50–$100	..	...	..	...	1	9.1	..	...
$100–$200	..	...	..	...	1	8.3	..	...
Over $200	..	...	..	...	..	...	..	...
Nonunderwritten Issues								
Under $1	44	21.7%	36	24.1%	31	24.4%	7	19.1%
$1–$5	6	20.9	10	20.3	3	16.5	2	23.6
$5–$10	2	14.8	2	10.9	2	16.4	1	16.8
$10–$50	..	...	1	4.8	..	...	..	...
$50–$100	..	...	..	...	1	2.2	1	4.4
$100–$200	..	...	..	...	..	...	..	...
Over $200	..	...	..	...	..	...	..	...

SOURCE: Securities and Exchange Commission, *Cost of Flotation for Registered Securities, 1938-1939* (Washington, The Commission, March, 1941), pp. 26, A21-22, A45-46; SEC Statistical Series Release No. 572 (June 6, 1941), pp. A23-A24; and Release No. 715 (June 18, 1942), pp. 29-30. All data refer to issues proposed for sale by the issuer through investment banking facilities.

EXHIBIT 24. COST OF FLOTATION OF PREFERRED STOCK ISSUES EFFECTIVELY REGISTERED FOR SALE TO THE PUBLIC UNDER THE SECURITIES ACT OF 1933, BY SIZE OF ISSUER, 1938-1941

Size of Issuer (In millions)	*1938*		*1939*		*1940*		*1941*	
	No. Issues	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*
Underwritten Issues								
Under $1	3	23·7%	3	14.8%	7	15·5%	2	12.5%
$1–$5	1	13·8	7	11·3	3	10·2	8	9·6
$5–$10	0	...	5	9·6	6	8·3	9	4·6
$10–$50	4	3·6	7	4·4	13	5·2	7	4·0
$50–$100	1	3·4	1	3·4	4	3·7	6	5·2
$100–$200	..	...	1	4·7	3	3·4	3	3·2
Over $200	..	...	1	2·4	..	...	2	3·3
Nonunderwritten Issues								
Under $1	20	18.8%	10	23·5%	11	20·9%	3	19·6%
$1–$5	3	10·2	3	12·9	4	14·9	3	13·6
$5–$10	1	11·2	1	8·5	..	...	2	4·7
$10–$50	4	4·9	1	6.1	1	3·6	1	13·0
$50–$100	..	...	..	...	2	3·1	..	...
$100–$200	..	...	..	...	..	...	1	5·7
Over $200	..	...	..	...	..	...	..	...

SOURCE: Securities and Exchange Commission, *Cost of Flotation for Registered Securities, 1938-1939* (Washington, The Commission, March, 1941), pp. 25, A19-20, A43-44; SEC Statistical Series Release No. 572 (June 6, 1941), pp. A21-22, and Release No. 715 (June 18, 1942), pp. 27-28. All data refer to issues proposed for sale by the issuer through investment banking facilities.

$200 million was about one-fourth the cost of similar issues for companies with assets of less than $1 million.

The costs of floating an issue may be conveniently divided into two parts: first, the compensation paid to investment bankers and other dealers for distributing the issue; and, secondly, the expenses of preparing the issue for sale — registration costs, fees for legal and accounting services, taxes, and so on. It is important to emphasize that the expenses of preparing issues for sale are much less on the average for all classes and sizes of issues than are the costs of selling the issue — this in spite of the many strictures hurled at the Securities and Exchange Commission.[1] The greater cost of floating small issues, as compared with large issues, results predominantly from the greater selling costs of small issues.

In part, the plight of small companies may be ascribable to the failure of our banking system to provide for them. To quote F. Eberstadt again:

> Not a week, nor scarcely a day goes by but what our firm is approached by some worthy small enterprise seeking from $50,000 to $100,000 of capital to develop or expand a sound small business or to start a promising new venture. But this sort of money is not available in New York. Wall Street's function in the investment field is the handling of those securities that are suitable for national distribution. The securities of such companies are not in this class. But there is every reason why they should be able to find capital and credit in their own localities. . . . *But in frankness we must admit that under present circumstances, it is next to impossible for them to obtain capital or credit where they ought to—viz., in their own communities.*[2] (Italics added)

But, even after all allowances for inadequacies in our present capital market and banking structure are made, it must be recognized that small companies cannot hope to compete for capital on equal terms with large, established companies. Small companies present far greater risks than entrenched corporations. They can offer much less resistance to cyclical

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[1] See Securities and Exchange Commission, *Cost of Flotation of Registered Securities, 1938-1939* (Washington, The Commission, 1941).

[2] Eberstadt, op. cit.

EXHIBIT 25. COST OF FLOTATION OF UNDERWRITTEN BOND ISSUES EFFECTIVELY REGISTERED FOR SALE TO THE PUBLIC UNDER THE SECURITIES ACT OF 1933, BY SIZE OF ISSUER, 1938-1941

	1938		*1939*		*1940*		*1941*	
Size of Issuer (In millions)	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*	*No. Issues*	*Cost as a Percentage of Amount*
Under $1	4	8.8%	4	7.3%	1	11.5%	1	7.3%
$1–$5	4	5.5	9	6.4	4	5.5	9	4.8
$5–$10	2	5.2	4	3.1	10	4.3	4	3.3
$10–$50	11	3.5	15	3.0	24	2.9	12	2.2
$50–$100	11	2.7	15	2.6	16	2.5	10	2.0
$100–$200	9	2.7	7	2.8	7	2.2	5	2.5
Over $200	13	2.3	11	2.3	14	2.1	14	2.0

SOURCE: Securities and Exchange Commission, *Cost of Flotation for Registered Securities, 1938-1939* (Washington, The Commission, March, 1941), pp. 23-25, A17-18, A41-43; SEC Statistical Series Release No. 572 (June 6, 1941), pp. A19-20, and Release No. 715 (June 18, 1942), pp. 25-26. All data refer to issues proposed for sale by the issuer through investment banking facilities. The small number of bond issues not underwritten prevents significant comparisons of costs by size of issuer for these issues.

fluctuations, and their continued success is often bound up with the life and vigor of individual managers. For these and many other reasons, even if the market were truly "perfect" in the classical sense, small companies would still have to pay much more for outside capital than would large, established corporations.

FLOW OF LONG-TERM FUNDS TO BUSINESS

A second method of appraising the ease with which growing enterprises can raise large amounts of outside capital is to survey the flow of long-term funds to business from the rest of the economy. What are the sources of these funds? How large are they? How do the investment policies of their owners affect their availability to different kinds of business firms? What changes can be discerned in the availability of these funds to small, growing enterprises? The remainder of this chapter attempts to answer these questions.

Savings of Individuals

The savings of individuals constitute the principal external source of long-term capital available to growing enterprises. Some of these savings are invested directly in growing enterprises by the individual savers themselves. Others are channeled to business enterprises through various financial and savings institutions — such as life insurance companies, commercial banks, and investment trusts. Still others for various reasons never become available to business enterprises at all.

The extent to which individual savings in any year are available to finance business growth consequently depends on three factors:

(1) The volume of individual savings in that year;

(2) The manner in which they are held — that is, the amounts held as cash or bank deposits, the amounts used to pay off old debts or to buy real estate, the amounts put in government bonds or in insurance and other financial and savings institutions, and, finally, the amounts invested directly in growing enterprises; and

(3) The extent to which the savings originally invested in

EXHIBIT 26. NET SAVINGS OF INDIVIDUALS, UNINCORPORATED BUSINESSES AND CORPORATIONS 1919-1938

(Five-year totals in billions of dollars)

Years	*(1)* *Net Savings of Individuals*	*(2)* *Net Savings of Unincorporated Businesses*	*(3)* *Sum of (1) and (2)*	*(4)* *Net Savings of Corps.*	*(5)* *Total Non-gov't Net Savings*	*(6)* *(1) as a Percentage of (5)*	*(7)* *(3) as a Percentage of (5)*
1919–23	$20.1	$ 8.8	$28.9	$ 5.1	$34.0	59.1%	85.0%
1924–28	18.6	6.6	25.2	5.0	30.2	61.6	83.4
1929–33	21.4	−7.4	14.0	−11.1	2.9	737.9	482.8
1934–38	23.2	+1.7	24.9	− 8.2	16.7	138.9	149.1

SOURCE: Simon S. Kuznets, *National Income and Its Composition, 1919-1938* (New York National Bureau of Economic Research, 1941), Vol. I, p. 276. Net savings of corporations represents essentially the undistributed net profit of corporations shown on income tax returns adjusted to exclude capital gains and losses on assets and to allow for changes in valuations of inventories and capital assets. See ibid., pp. 410-413. Net savings of individuals similarly exclude capital gains and losses as well as depreciation on residential houses, but include the imputed rent on owner-occupied dwellings.

financial and savings institutions are reinvested by these institutions in growing enterprises.

Volume of Individual Savings. The volume of individual savings is consistently very large.[1] Simon Kuznets of the National Bureau of Economic Research has estimated that in the five years 1924 to 1928 inclusive, individuals accumulated $18.6 billion of savings, and that during 1934 to 1938 they saved the even larger total of $23.2 billion — an average of more than $4.5 billion a year. Stated somewhat differently, as is shown in Exhibit 26, the savings of private persons accounted for about 60% of all savings made outside of government during the 1920's. In fact, during the first half of the 1930's, when both incorporated and unincorporated businesses as a whole were making inroads on their capital, the savings of individuals were the only source of positive net savings in the economy.

Data for recent years do not distinguish between savings of private persons and savings of unincorporated business. But as Exhibit 31 (p. 112) shows, the combined savings of private persons and unincorporated businesses have increased tremendously since 1940 and are now running at an annual rate more than four times their 1929 volume. Moreover, in addition to their increasing absolute size, individual savings[1] appear to represent about as large a percentage of total nongovernmental savings now as in the 1920's.

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[1] Individual savings in any year are defined as the difference between the total incomes received by individuals during the year and the expenditures by individuals for consumable goods and services. No existing estimates can be regarded as fully accurate. Moreover, various estimates differ because of differences in the items which estimators include in their income and consumption totals. Nevertheless, in their broad outlines these estimates may be accepted as sufficiently reliable for the purposes of this study.

The evidence is clear that the American people save sizable amounts of their income even in the depths of depression and that the amounts saved increase rapidly as business improves. Any failure of individual savings to flow into business uses consequently cannot be explained by an absence of saving, but, on the other hand, must be explained by the fact that these savings were not being invested, directly or indirectly, in business concerns.

Direct Investment of Individual Savings in Business. There are no really satisfactory data to indicate the total amount of new investments made by individuals directly in business enterprises in each year. It is possible, however, to estimate for recent years the amounts by which new investments by individuals in corporate securities exceeded the amounts withdrawn from such investments. These estimates, based on data published by the Securities and Exchange Commission, show the net change in the aggregate holdings of corporate securities by all individuals considered as a group. Since these estimates are made in a manner designed to eliminate the effects of price changes,[2] an increase in the holdings of corporate securities by all individuals will indicate that private investors as a group have invested additional funds in these securities. Correspondingly, a reduction in the holdings of these securities by individuals will indicate that individuals as a group have withdrawn funds from such investments.

These changes in the aggregate holdings of corporate securities by individuals may be used as an index of their willingness to invest in business generally. Even though these data are necessarily subject to rather wide margins of error,[1] they appear to be reasonably good estimates of the orders of magnitude involved.[2] The story they tell is so clear that the conclusions based on them would be unchanged even if the specific figures in question were considerably modified. Moreover, the trends noted in the holdings of corporate securities would probably be in the same direction and even more pronounced for unincorporated business, so that no serious distortion is likely to result from estimates relating only to corporate securities. It is of course true that not all additions to the corporate securities held by individuals provide funds for business expansion,[3] but an increase in their holdings does indicate a *willingness* or *desire* to undertake the risks of ownership and long-term creditorship of business enterprise — and that is the thing to be measured.

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[1] Subsequently in this section, the term "individual savings" includes the savings of unincorporated nonagricultural business, nonprofit organizations, and trust funds, as well as those of private persons and families. This usage is dictated by the form of the available data, and is in keeping with the definitions used in most tabulations by the Securities and Exchange Commission and the Department of Commerce.

[2] Cf. footnote 2, page 106 below.

What then is the story which these figures tell? Briefly they show a great decrease since 1930 in the willingness of individual savers to hold corporate securities; individuals held a smaller

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[1] The series is a residual, obtained by subtracting the estimated net changes in security holdings of domestic "nonindividuals" and foreigners from the net change in securities outstanding. The series has been compiled by the Research and Statistics Division of the Securities and Exchange Commission from their own data and reports of the Treasury Department, the Federal Reserve Board, Federal Deposit Insurance Corporation, Moody's Investors' Service, and the *Commercial & Financial Chronicle*. Cf. R. W. Goldsmith and Walter Salant, "Volume and Components of Savings in the United States, 1933-1937," in *Income and Wealth*, (New York, National Bureau of Economic Research, 1939), Vol. III, especially pp. 256-273; Securities and Exchange Commission. *Volume and Components of Savings in the United States, 1933-1940*, Special Studies No. 11; and footnote 2, page 106 below.

[2] The estimates are consistent with independent information on the disposition of the balance of individuals' savings. It must be noted, however, that these estimates of changes in individuals' holdings of securities must be adjusted for the net increase or decrease in their borrowings against these holdings to arrive at an estimate of the amount of individual *savings* invested in corporate securities.

[3] Increased individual holdings of corporate securities might simply represent the acquisition from institutions (e.g., life insurance companies) of previously outstanding securities or of new securities issued to refund issues previously held by nonindividuals. In both of the situations the growth of the issuing firm would have occurred at a previous time. Similarly, increased holdings of new securities issued by operating companies to finance the purchase of outstanding securities and existing assets will not directly result in expanded productive capacity. It should be noted that sales of securities between individuals at whatever prices do not change individuals' aggregate holdings. Nor do individuals' purchases of securities of investment trusts or holding companies, so long as the proceeds are used to buy other securities previously held by individuals. If, however, the proceeds are used to buy securities held by nonindividuals, the comments at the first of this note apply.

EXHIBIT 27. ISSUES OF DOMESTIC CORPORATE SECURITIES

(In billions of dollars)

Years	*Total Issues (Commercial & Financial Chronicle)*	*Issues for New Capital (Commercial & Financial Chronicle)*			*Productive Issues* (Moody's Investors' Service)*
		Total	*Bonds and Notes*	*Equity Securities*	
1919	$2.7	$2.2	$0.8	$1.4	†
1920	2.8	2.6	1.6	1.0	†
1921	2.3	1.7	1.4	0.3	$0.9
1922	2.9	2.2	1.6	0.6	1.3
1923	3.2	2.6	2.0	0.6	1.6
1924	3.5	3.0	2.2	0.8	1.9
1925	4.2	3.6	2.5	1.1	1.8
1926	4.6	3.8	2.7	1.1	1.8
1927	6.5	4.7	3.2	1.5	1.8
1928	6.9	5.3	2.4	2.9	1.5
1929	9.4	8.0	2.1	5.9	1.8
1930	5.0	4.5	3.0	1.5	1.9
1931	2.4	1.5	1.2	0.3	0.8
1932	0.6	0.3	0.3	‡	0.2
1933	0.4	0.2	‡	0.1	0.1
1934	0.5	0.2	0.1	‡	0.1
1935	2.3	0.4	0.3	0.1	0.1
1936	4.6	1.2	0.8	0.4	0.4
1937	2.4	1.2	0.8	0.4	0.6
1938	2.1	0.9	0.8	0.1	0.4
1939	2.1	0.4	0.3	0.1	0.2
1940	2.8	0.7	0.6	0.1	0.5
1941	2.6	1.1	0.9	0.2	0.7

*Moody's "productive issues" reduces the Chronicle's "new capital" series mainly to exclude issues of investment trusts, holding companies, and operating companies financing purchases of other securities and existing assets. Since 1931, issues for "working capital" are excluded.

†Data not available.

‡Less than $50,000,000.

SOURCE: Taken from *Survey of Current Business, 1942 Supplement,* p. 81, and *Banking and Monetary Statistics,* Federal Reserve Board, November, 1943, p. 487.

volume of these securities (excluding price changes) in 1940 than in 1933. The large volumes of individual savings accumulated in these years were invested elsewhere, and, in addition, individuals as a group withdrew funds previously committed to corporate investment. This fact is so important that it must be developed in greater detail.

During the 1920's large amounts of individual funds were invested directly in corporate securities issued to finance new production and business expansion. As Exhibit 27 shows, issues of corporate stocks and bonds were very large in these years. Even after all refunding issues, and the issues of investment trusts, holding companies, and other similar issues are eliminated, the remaining new productive issues amounted to more than $1.5 billion in every year from 1923 through 1930. There can be no doubt that in these years individuals were investing substantial amounts of funds in new securities issued for the purpose of financing business expansion.

This situation was strikingly reversed in the 1930's. From 1934 through 1940, funds withdrawn by individuals from investments in corporate securities exceeded the flow of new funds into these securities, apparently by more than $3 billion.[1] This estimate is made by a method designed to exclude the effect of price changes.[2] Some individuals, of course, continued to increase their holdings of corporate stocks and bonds during the 1930's, but these increases seem to have been more than offset by reductions in the holdings of other individuals.

This reduction in the holdings of corporate securities by individuals is even more impressive when it is compared with the large volume of individual savings during the same period. The new savings of individuals exceeded $30 billion during the years 1934-1940. Yet even though this tremendous sum had to be held or invested in some form, individuals were liquidating rather than increasing their holdings of corporate securities.

Interpretation of Decreased Holdings of Corporate Securities by Individual Savers. Several explanations can be offered for this trend. In part, the reduction in the holdings of corporate securities by individuals can be explained by the reduced supply of such securities. But this explanation can account for only a small part of the decline; data published by the Securities and Exchange Commission indicate that the net reduction in outstanding corporate securities in 1934-1940 was less than $125 million — a very small percentage of the apparent liquidation of corporate securities by individuals.[1]

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[1] The total of all securities held by individuals is estimated by the Securities and Exchange Commission to have declined by about $4 billion over this period. (SEC, *Volume and Components of Savings in the United States, 1933-1940*, Special Studies No. 11), Table 4, following p. 20. Inasmuch as their holdings of Federal obligations increased by nearly as much as their holdings of the securities of foreign, state, and local governments declined, $3 billion may be taken as a conservative estimate of the reduction of corporate securities held by individuals. This estimate is, of course, subject to error. But it does seem clear that on balance individuals were very substantially reducing their holdings of corporate securities in the face of a large current accumulation of additional savings.

[2] The SEC data represent the difference between the cost of purchases and proceeds from the sale of such securities, so that changes in the value of securities continuously held by individuals as a group do not enter into the estimate. However, changes in price levels would affect the valuation of the balance of securities sold by individuals as a group to, say, banks and insurance companies. This statement qualifies the view of Goldsmith and Salant (*Income and Wealth*, Vol. III, p. 257) that "changes in the value of securities outstanding do not enter into the computations."

A related explanation is perhaps of more importance. Large amounts of corporate bonds were refunded during the 1930's, and in some instances private placements of the new issues were made with financial institutions such as banks and insurance companies.[2] In other instances term loans from banks were used to retire outstanding issues. The holdings of private individuals would be reduced by these operations to the extent that the refunded securities were held by private investors. But these investors could have replenished their portfolios with other securities, had they so desired.

The decreased holdings of corporate securities by individuals has also been explained by the declining yields on investments in these securities during the last decade. For corporate bonds this explanation is plausible. Between 1933 and 1937 alone, average yields on corporate bonds fell by nearly two full percentage points, or by about one-third of their former level. Moreover, during these years yields on corporate bonds were falling much more rapidly than were yields on government bonds. During the period 1933-1937 individuals are estimated to have reduced their holdings of corporate bonds by about $1.7 billion.[3]

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[1] Securities and Exchange Commission, Special Studies No. 11, table 2, following p. 20. Foreigners were adding to their holdings during these years, so that the reduction in outstanding securities held domestically was somewhat larger than the figure in the text.

[2] Cf. pp. 113-116.

[3] Securities and Exchange Commission, *Selected Statistics on Security and on Exchange Markets*, Part I, New Issue and Retirements of Securities, May 12, 1939, p. A-3; Part II, Changes in Ownership of Outstanding Securities, May 15, 1939, p. 19. This figure represents the difference between cost of purchases and proceeds from sale of domestic corporate bonds and notes by domestic "noninstitutional investors," which include individuals, unincorporated firms, trust funds under the administration of banks and trust companies, nonprofit organizations, closed banks, nonfinancial corporations, and building and loan associations. The figure is obviously only an approximation to the changed holdings of individuals

(*Footnote continued on next page*)

EXHIBIT 28. COMPARATIVE YIELDS ON BONDS AND STOCKS, 1929-1941

	Bonds					*Stocks*	
Year	*U. S. Treasury*	*Industrials*	*Corporate Average*	*Aaa*	*Baa*	*200 Common Stocks*	*125 Industrials*
1929	3.60%	5.31%	5.21%	4.73%	5.90%	3.5%	4.0%
1930	3.29	5.25	5.09	4.55	5.90	4.6	4.9
1931	3.34	6.08	5.81	4.58	7.62	6.2	6.4
1932	3.68	6.71	6.87	5.01	9.30	7.4	7.3
1933	3.31	5.34	5.89	4.49	7.76	4.4	3.7
1934	3.12	4.52	4.96	4.00	6.32	4.1	3.4
1935	2.79	4.02	4.46	3.60	5.75	4.1	3.5
1936	2.65	3.50	3.87	3.24	4.77	3.5	3.4
1937	2.68	3.55	3.94	3.26	5.03	4.8	4.8
1938	2.56	3.50	4.19	3.19	5.80	4.4	3.9
1939	2.36	3.30	3.77	3.01	4.96	4.2	3.9
1940	2.21	3.10	3.55	2.84	4.75	5.3	5.3
1941	1.95	2.95	3.34	2.77	4.33	6.2	6.3

SOURCES: Yields on U. S. Treasury Bonds compiled by the U. S. Treasury Department; all other yields compiled by Moody's Investors' Service. Data taken from *Survey of Current Business, 1942 Supplement*, pp. 84, 87.

This explanation in terms of declining yields breaks down, however, in the case of stock holdings. As indicated in Exhibit 28, yields on common stocks in 1937 were higher than in any of the preceding four years. Moreover, the small declines in computed yields in 1934 and 1936 were the result of a rapid recovery of stock prices. Dividends increased in each year throughout the period. Furthermore, as a result of the rapid recovery in corporate profits from 1933-1937, the earnings yield of corporate stocks generally increased even more rapidly than their dividend yield. (See Exhibit 29.) In spite of these favorable trends, however, and in spite of the large accumulation of individual savings, the holdings of corporate stocks by individuals are estimated by the Securities and Exchange Commission to have fallen by approximately $300 million, excluding price changes.[1]

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and unincorporated firms. But the net effect of the other categories appears to be small. (Ibid., pp. 16-20.) Changes in market value of domestic corporate securities held, and the disappearance of securities through recapitalization, bankruptcy, etc., are excluded. (Ibid., p. 19, footnote 17.) If reorganizations, etc., were included, the indicated reductions in holdings would be increased by roughly $500 million. (Part II, p. 19, note 18; Part I, p. 11, note 26.)

[1] Ibid., Part I, p. A-1; Part II, p. 20. The figure represents the estimated difference between cost of purchases and proceeds from sale of domestic corporate stocks, adjusted for the net change in holdings of institutional and foreign investors. This estimate is represented by the Securities and Exchange Commission to be exclusive of all price changes, but the qualifications of note 2, p. 106 above must be made.

EXHIBIT 29. CORPORATE PROFITS, CASH DIVIDENDS, AND STOCK PRICES, 1933-1937

	Corporate Profits after Taxes				*Cash Dividends*			*Stock Prices*	
Year	*629 Industrials (monthly average) (In millions)* (1)	*All Corporations* (2)	*All Nonfinancial Corporations Percentage of net worth* (3)	*All Manufacturing Corporations* (4)	*Total Annual Payments at Current Rates 600 Companies (In millions)* (5)	*Dividend Rate Per Share 600 Companies* (6)	*Dividend Rate Per Share 492 Industrials* (7)	*Average Price All Shares Listed on New York Stock Exchange Dec. 31, 1942 = 100* (8)	*Average Price 30 Industrials* (9)
1933	$ 88	−0.81%	−0.09%	0.68%	$1,008	$1.09	$0.78	$45.8	$83.73
1934	154	1.72	1.88	3.01	1,108	1.20	0.95	52.5	98.28
1935	251	3.42	3.29	5.68	1,215	1.32	1.14	57.9	120.00
1936	386	4.83	5.24	7.94	1,493	1.62	1.52	79.8	162.25
1937	423	4.60	5.02	7.40	1,943	2.10	2.10	77.1	166.36

SOURCES: Columns 2, 3, 4: W. L. Crum, *Corporate Size and Earning Power* (Cambridge, Harvard University Press, 1939), pp. 19, 246. Figures for 1937 estimated by Mr. Crum's methods. Data for all other columns are taken from *Survey of Current Business, 1942 Supplement*, pp. 73, 84, 85.

Column 1 compiled by Board of Governors, Federal Reserve System.

Columns 5, 6, and 7 compiled by Moody's Investors' Service.

Column 8 compiled by N. Y. Stock Exchange.

Column 9 compiled by Dow-Jones & Co., Inc.

EXHIBIT 30. COMPOSITION OF SAVINGS OF INDIVIDUALS IN THE UNITED STATES, 1934-1940

(In billions of dollars)

	1934	*1935*	*1936*	*1937*	*1938*	*1939*	*1940*	*Total 1934-1940*
Currency and Bank Deposits	+$2.4	+$2.6	+$3.9	+$0.3	+$0.2	+$2.0	+$3.0	+$14.4
Saving and Loan Associations	−0.3	−0.2	−0.2	+0.1	0.0	+0.1	+0.2	− 0.3
Private Insurance	+1.2	+1.6	+1.9	+1.4	+1.4	+1.8	+1.7	+11.0
Government Insurance	+0.2	+0.2	+0.4	+1.5	+1.1	+1.1	+1.2	+ 5.7
Total Insurance	+1.4	+1.8	+2.3	+2.9	+2.5	+2.9	+2.9	+16.7
Securities								
Change in Holdings	−0.4	−2.3	+0.1	+0.4	−0.8	−0.8	−0.4	− 4.2
Change in Borrowing on Securities	−0.5	0.0	+0.1	−0.5	−0.1	−0.2	−0.2	− 1.4
Change in Individuals' Equity	+0.1	−2.3	0.0	+0.9	−0.7	−0.6	−0.2	− 2.8
Nonfarm Dwellings	−0.5	+0.1	+1.1	+1.1	+1.0	+1.2	+1.7	+ 5.7
Liquidation of Debt, n.e.c.	*−0.2*	*−0.3*	*−0.7*	*−0.4*	*+0.3*	*−0.3*	*−1.1*	*− 2.7*
Total Savings	+2.9	+1.7	+6.4	+4.9	+3.3	+5.3	+6.5	+31.0

SOURCES: For 1933-1939 from SEC, *Volume and Components of Saving in the U. S., 1933-40*. Special Studies No. 11, July, 1941, table 1; Private Insurance is taken from studies in *Income and Wealth*, Volume III, National Bureau of Economic Research, Part IV, "Volume and Components of Saving in the U. S., 1933-37" by R. W. Goldsmith and Walter Salant, table 3, p. 252. Private Insurance for 1938 and 1939 is estimated on the basis of the previous two sources. Data for 1940 is taken from SEC Statistical Series Release No. 741, June 25, 1944. In its published tabulations the SEC includes items for savings in consumers' durable goods (automobiles, etc.) which are omitted in the above table since these items may, for our purposes at least, be more properly considered consumption expenditures. The SEC estimates are systematically lower than Kuznets', however, due in large part to an apparent understatement of the liquidation of debt. (See Kuznets, op. cit., pp. 301-304, and *Income and Wealth*, Vol. III, pp. 301-304, 311-315.) In spite of this, and other deficiencies, the SEC tabulations throw valuable light on the changing form in which individual savings are being held.

The explanations thus far considered do not adequately account for the decreased holdings of corporate securities by individuals at a time when large amounts of new savings were being accumulated and corporate profits, dividends, and security prices were, in general, rising. Only a diminishing willingness on the part of individual investors to bear the risks of business ownership appears adequate to account for these facts.

A decreased willingness to bear risks is reflected by the ways in which individual savers were actually holding their savings in the 1930's as well as by their refusal, as a class, to invest in corporate securities. As Exhibit 30 shows, during the middle and late 1930's unspent income was put increasingly in *safe* forms — currency, insured bank deposits, and life insurance.[1] Each of these outlets for savings absorbed a markedly increased proportion of all new savings. Together, they were large enough to account on balance for more than 80% of savings by individuals during the period 1933-1940. Government insurance and home ownership also absorbed substantial amounts of savings. Corporate securities, as previously noted, are conspicuously lacking from these outlets for savings.

As Exhibit 31 indicates, the basic relationships pointed out for the years 1934-1940 appear to hold during 1941-1944. Savings by individuals amounted to the unprecedented volume of $125 billion for the four years 1941-1944. Approximately $55 billion of these savings has gone into war bonds, government insurance, and other government securities. But the remaining $70 billion of individual savings not going to the government has also been held in safe forms: increased holdings of currency and bank deposits, debt repayments, and payments of life insurance premiums account for most of this $70 billion. In spite of their tremendous magnitude, by the end of 1944 individual savings on balance had not flowed at all into corporate securities.

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[1] Savings of individuals committed to life insurance are measured by the change in policyholders' net equity—i.e., the increase in total assets minus capital obtained from nonpolicyholders minus policy loans and notes. (*Income and Wealth*, p. 251). New insurance written fell off somewhat during the 1930's, but total premium collections generally continued to increase. Premium notes and policy loans increased continuously from 1921 through 1932 and then declined moderately in every year on through 1941. (National Industrial Conference Board, *Economic Almanac for 1940*, p. 148; *Spectator Insurance Yearbook, 1942*, pp. 138-139 A.)

EXHIBIT 31. COMPOSITION OF SAVINGS OF INDIVIDUALS IN THE UNITED STATES, 1941-1944

(In billions of dollars)

	1941	*1942*	*1943*	*1944*	*Total 1941-1944*
Currency & Bank Deposits	+$4.9	+$11.4	+$15.3	+$17.0	+$48.6
Savings & Loan Assns.	+0.4	+ 0.3	+ 0.6	+ 0.9	+ 2.2
Private Insurance	+2.1	+ 2.5	+ 3.1	+ 3.3	+11.0
Government Insurance	+1.8	+ 2.4	+ 3.8	+ 4.4	+12.4
Total Insurance	+3.9	+ 4.9	+ 6.9	+ 7.7	+23.4
Securities*					
a. U. S. Savings Bonds	+2.8	+ 8.0	+11.1	+11.8	+33.7
b. Other U. S. Gov'ts	+0.8	+ 1.9	+ 2.7	+ 3.7	+ 9.1
c. State & Local Gov'ts	−0.2	− 0.1	+ 0.2	− 0.1	− 0.2
d. Corporate & Other	−0.5	+ 0.3	− 0.2	− 0.6	− 1.0
e. Total	+2.9	+10.1	+13.8	+14.8	+41.6
Nonfarm Dwellings					
a. Purchases†	+3.0	+ 1.6	+ 1.0	+ 0.8	+ 6.4
b. Change in Debt	+0.9	+ 0.1	− 0.3	0.0	+ 0.7
c. Saving (a. minus b.)	+2.1	+ 1.5	+ 1.3	+ 0.8	+ 5.7
Liquidation of Debt n.e.c.‡	−0.6	+ 2.9	+ 1.0	− 0.3	+ 3.0
Total§	+$13.6	+$31.1	+$38.9	+$40.9	+$124.5

*Does not include net purchases by brokers and dealers or by other individuals financed by bank loans.

†New construction of one-to four-family nonfarm homes less net acquisition of properties by nonindividuals.

‡Largely attributable to purchases of automobiles and consumers' goods, although including some debt arising from purchases of consumption goods. The other segments of individuals' debt have been allocated to the assets to which they pertain; viz: saving in savings and loan associations, insurance, securities, and homes.

§All figures are rounded and will not necessarily add to totals.

SOURCE: SEC Statistical Series Release No. 749, March 20, 1945.

Since 1933 the volume of currency and bank deposits has increased rapidly, primarily because of the credit creation resulting from the sale of government bonds to commercial banks. A large part of this increase in currency and bank deposits has been held by individuals.[1] In part, the increased holdings of currency by individuals can perhaps be explained by reasons other than a desire for greater security; for instance, sheer inertia on the part of individual savers may be an important factor.[1] But inertia cannot account for the marked increase in the importance of life insurance as an outlet for individual savings or for the failure of individuals to increase their investments in corporate securities. These developments appear to point to a large and deliberate shift in the investment policies of individual savers. This shift, it would seem, can best be described as a flight from risk or a growing desire for security.[2] It is clear that unless and until willingness on the part of individuals generally to assume the risks of ownership is revived, business as a whole cannot rely to an important extent on sales of securities direct to individual savers to finance its expansion.

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[1] It should perhaps be repeated that the nature of the available data requires that unincorporated businesses be grouped with private individuals.

Investment Policies of Financial and Savings Institutions

The full effects of the increasing flow of individual savings to financial and savings institutions, and away from corporate securities, can be appraised only after the investment policies of these institutions are examined. If these institutions channel the funds under their control to growing enterprises, the potentially serious effect of the unwillingness of individual savers to hold corporate securities will be largely cancelled. It remains therefore to consider the extent to which most growing businesses can reasonably count on obtaining savings of individuals at second hand by selling securities to the major savings institutions.

In discussing the investment policies of savings institutions primary emphasis will be placed on life insurance companies, since they have absorbed such a large amount of individual savings. Life insurance companies typically maintain highly conservative investment portfolios. Their conservatism arises partly from legal restrictions on their investment policies, partly from established traditions, and partly from the terms on which they obtain the public's savings.

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[1] Traditional explanations of "liquidity preference" in terms of holding funds for later transactions and calculated decisions to avoid risk generally overlook the fact that funds saved will initially be held as currency or bank deposits and that in many cases a further decision will be required to invest the funds in other assets. Sizable volumes of deposits may accumulate because the further decisions are never made.

[2] Because of the different meanings sometimes attached to the phrase, *flight from risk*, it should perhaps be stated that as here used this phrase refers simply to a shift from owning assets in which the risk of loss is relatively high to the ownership of assets such as cash, government bonds, and life insurance contracts where the risk of loss is low.

Insurance contracts must be paid in dollars, irrespective of fluctuations in the value of the dollar; hence, the assets of insurance companies must be invested safely. Security to the policyholder is a controlling objective in all investment decisions. Indeed, the increased volume of funds flowing into insurance during the last two decades can probably be explained largely by the confidence which the public has in the security of insurance companies.

The conservatism of the investment policies of life insurance companies is illustrated by the increased importance of government securities in their portfolios and by their shift toward investments in corporate bonds rather than corporate stocks. For instance, holdings of U. S. government securities by insurance companies increased from $421 million, or 2.2% of admitted assets, in 1932 to $4,646 million, or 18.2% of admitted assets, in 1938. Similarly, uninvested cash funds rose from $291 million, or 1.5% of admitted assets, in 1932 to $704 million, or 2.8% of admitted assets, in 1938. Put another way, purchases of government bonds accounted for 64.9% and additional holdings of cash for another 6.3% of the total increase in admitted assets between 1932 and 1938.[1] Real estate holdings also increased in percentage importance during the 1930's, but foreclosures rather than voluntary purchases probably accounted for this increase. Holdings of corporate securities increased from 28.1% to 30.4% of admitted assets between 1932 and 1938.

A breakdown of the holdings of corporate securities by life insurance companies, however, reveals a shift toward funded issues. Holdings of corporate bonds increased by nearly $3.5 billion during the years 1934-1940, whereas they had increased by only $2.1 billion in 1924-1930. On the other hand, holdings of equity securities rose by only $14 million in 1934-1940 as compared with an increase of $375 million in 1924-1930.[1]

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[1] This is in sharp contrast to the actual decline in holdings of U. S. governments of $316 million between 1925 and 1929 when admitted assets were jumping from $10,668 to $16,002 million. All data refer to 49 largest legal reserve companies holding more than 90% of the admitted assets of all United States legal reserve companies. *Proceedings* of the 34th Annual Convention of the Association of Life Insurance Presidents, December 11-12, 1941, pp. 115-117.

Thus, the decreased holdings of corporate bonds by individuals have been largely offset by the increased holdings of life insurance companies. In the late 1930's corporations floating bond issues acquired individual savings by way of life insurance companies rather than directly. But equity money was transmitted to the capital market to a much smaller extent. Insurance companies, like individual savers, have shown less willingness to hold equity shares.

This shift in the flow of funds away from equity shares is more pronounced for small, growing firms than for large, established companies. For practical purposes, funds under the control of life insurance companies ordinarily are not available to small, growing companies. Rigid legal restrictions on the investments of life insurance companies in themselves ordinarily would prevent insurance companies from buying the securities of small companies or even of larger speculative enterprises. The legal requirements are reenforced by the traditionally conservative policies of insurance company managements and by the desire of these managements to administer their investments economically. The large insurance companies, for instance, are seldom interested in placing funds in lots of less than $100,000.

In general, the other major savings institutions show the same inability or disinclination to supply long-term venture capital to business. Commercial banks, for example, reduced their aggregate holdings of corporate securities sharply during the 1930's. The holdings of all member banks, for instance, amounted to $4.3 billion at their peak in 1931; ten years later they had been reduced to $2.6 billion, consisting almost entirely of highest grade issues of large, well-established companies. Moreover, commercial banks are largely prohibited by legal requirements and by established practice from supplying equity capital to business enterprises. Much the same restrictions apply to savings banks. Investment trusts, although more likely to hold common stocks, generally hold only securities with a ready and established market. Pension and retirement

[1] Ibid.

funds have shown an enormous expansion over the last decade, but these funds are invested in government bonds and the highest grade private issues.

Thus, the evidence points overwhelmingly to the conclusion that the savings of individuals, to the extent that they are entrusted to the major savings institutions, will not in any important degree satisfy the demands of growing firms for equity capital, especially the demands of small enterprises undertaking highly venturesome developments.

LONG-TERM FUNDS SUPPLIED BY OTHER INDUSTRIAL COMPANIES

Long-term funds are often supplied to small growing firms by other industrial concerns. For instance, the original financing for both the Lithomat Corporation and the Clarkson Manufacturing Company was supplied by other firms. Although data are not available to measure the over-all importance of such financing, it seems to have taken place on a considerable scale in recent years.

The importance of this source of long-term funds for *independent* concerns, however, can easily be overestimated. In the majority of cases any substantial reliance on the capital of other companies will compromise the borrowing company's own independence, and will very often provide the first step toward absorption or control by the outside companies supplying the funds. Growing enterprises desiring to maintain their own independence will consequently find funds supplied by other firms a very limited, and potentially very dangerous, source of capital to finance their expansion.

It should also be noted that long-term capital loans between independent firms largely substitutes the growth of some firms for the growth of others. Consequently, they will wash out when the growth of all companies is considered together. Transfers of funds from one corporation to another cannot increase the total supply of capital available to the corporate economy as a whole. They may help to distribute this capital more effectively, but only with the risks to the independence of the borrowing firm previously noted.

CHAPTER VIII

Outside Sources of Funds for Business Expansion: Short-Term and Medium-Term Funds

SUMMARY OF CONCLUSIONS

1. Whereas short-term and medium-term credit appears to have been readily available to most large companies during the 1930's, many credit-worthy small firms appear to have had great difficulty in obtaining short-term and medium-term credit during these years.

2. The principal sources of this credit are loans from commercial banks, loans from various intermediate credit agencies, advances of trade creditors, and loans from government agencies.

3. Many small firms were unable to satisfy the requirements of commercial banks for short-term loans in the 1930's, even though they had satisfactory credit ratings. Moreover, small firms, in general, have not been able to obtain term loans.

4. These difficulties of borrowing from commercial banks have been partly offset by growing use of specialized techniques of credit extension and increasing dependence on intermediate credit agencies and trade credit.

5. Moreover, in the early 1930's Congress authorized the Reconstruction Finance Corporation and the Federal Reserve Banks to make direct loans to business firms. These loans, however, were not made in large volume prior to the war; moreover, they were made principally to medium-size and large companies.

6. Thus, in spite of new loan techniques and government aid, short-term credit and, to an even greater degree, medium-term credit appear to have been very difficult for many small companies to raise during the 1930's. The new techniques that developed so rapidly during the 1930's have at best been ameliorative influences.

7. In general, therefore, the findings of this chapter strengthen those of the preceding chapter. The expansion of many small firms was apparently restricted during the 1930's by shortages of short-term and medium-term credit as well as by the scarcity of long-term capital. Moreover, small firms, even if they can obtain short-term and medium-term credit, usually can acquire it only under much less favorable terms than can large companies.

LOANS FROM COMMERCIAL BANKS

The Commercial Loan

The great bulk of bank credit available to business firms has always been supplied, at least nominally, by way of the commercial loan. The volume of such loans has always been large: national banks alone were carrying around $8 billion of such loans during the 1920's while all member banks appear to have been supplying over $11 billion of short-term credit to business firms in these years.[1]

From the mid-1920's, at least until the outbreak of the war, however, the volume of commercial loans was declining, relative both to the level of industrial output and to income payments. In general, this decline also holds for different industrial groups and different sizes of corporations.[2] For instance, as Exhibits 32 and 33 show, commercial loans failed to respond to the expanding output and incomes of the 1920's, declined more sharply and for a longer period of time during the depression, and failed to increase in proportion to income payments and output during the recovery movement of the 1930's.

The reasons for the decline of commercial loans to large corporations appear to have been very different from those for small firms. In general, large firms appear to have had relatively easy access to bank credit during and after the depression. Most of the decline in the bank borrowing of large manu-

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[1] Adequate data are not available for the commercial loans of all commercial banks.

[2] For data on the relative decline of commercial loans for large and small corporations and for different industries see Koch, *The Financing of Large Corporations, 1920-1939*, pp. 5, 65-71, and C. L. Merwin, *Financing Small Corporations in Five Manufacturing Industries, 1926-1936* (New York, National Bureau of Economic Research, 1942), pp. 4, 65-71.

EXHIBIT 32. COMMERCIAL LOANS, NATIONAL INCOME, AND INDUSTRIAL PRODUCTION, 1921-1939

Year	*Commercial Loans** (*In millions*)	*Net National Income*† (*In billions*)	*Index of Industrial Production*‡ (*1935-1939 = 100*)
1921	$9,025	$59.4	56
1922	7,969	60.7	74
1923	8,372	71.6	86
1924	8,338	72.1	81
1925	8,376	76.0	90
1926	8,656	81.6	95
1927	8,455	80.1	94
1928	8,745	81.7	99
1929	7,909	87.2	110
1930	7,590	77.3	90
1931	6,788	60.3	75
1932	5,150	42.9	57
1933	3,826	42.2	68
1934	3,666	49.5	74
1935	3,735	54.4	87
1936	4,073	62.9	104
1937	4,928	70.5	113
1938	4,776	65.5	87
1939	4,096	70.2§	108

*Loans "commercial in form" of all national banks. Data in *Annual Reports of the Comptroller of Currency* were reclassified by Pearson Hunt in *Portfolio Policies of Commercial Banks in the United States, 1920-1939*, (Harvard Business School, Division of Research, Business Research Studies No. 24, 1940).

†Simon S. Kuznets, *National Income and its Composition, 1919-1938.* (New York, National Bureau of Economic Research, 1941), Vol. I, Table 1, p. 137.

‡Compiled by the Division of Research and Statistics, Board of Governors of the Federal Reserve System, Reported in *Survey of Current Business, 1942 Supplement*, p. 7.

§Estimated.

facturing concerns occurred in the early 1920's; since the middle of that decade the bank credit of these firms has fluctuated closely with changes in business activity. Moreover, the proportion of large manufacturing firms borrowing from banks has shown comparable fluctuations.[1]

The decline in the relative importance of bank borrowing for large firms apparently cannot be explained primarily by bank pressure for the reduction of loans or by refusals of bank credit to these firms. Rather, a more plausible explanation appears to be the increased reliance of large corporations on alternative sources of funds and technological and organiza-

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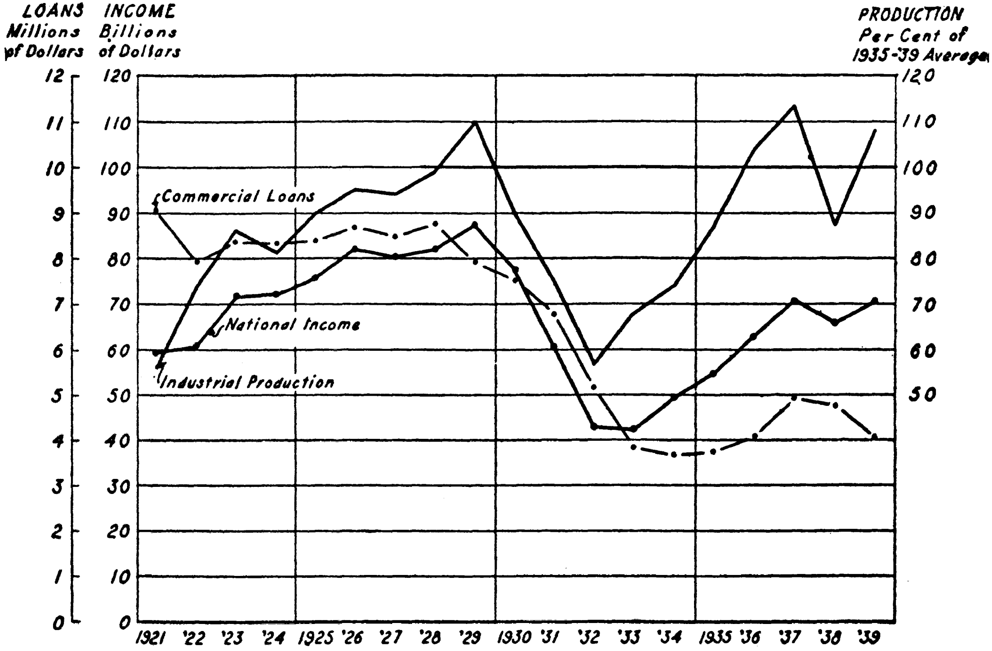
[1] See Koch, op. cit., pp. 5, 65-71, and C. L. Merwin, *Financial Characteristics of American Manufacturing Corporations*, TNEC Monograph No. 15, pp. 77-83.

EXHIBIT 33. COMMERCIAL LOANS, NATIONAL INCOME, AND INDUSTRIAL PRODUCTION, 1921-1939



SOURCE: Data from Exhibit 32.

tional changes which have reduced the need for current credit. Among these changes the most important seem to have been a more extensive integration of operations reducing seasonal fluctuations in the need for credit and a more economical handling of inventories.[1]

For small companies, however, the reasons for the declining importance of bank credit appear to have been quite different. Flotations of additional stock and bonds by small companies did not take place on a large scale, and the possibility of economizing the use of current funds through organizational changes were manifestly limited.

On the other hand, increased bank lending directly to consumers and the growth of personal finance companies did reduce the receivables which some firms had to carry. Similarly, increased competition among suppliers seems to have made trade credit more accessible to small firms.[2]

But in addition to these factors bank credit seems to have been generally less available to small companies in the 1930's than prior to the depression. Three careful studies of the availability of bank credit to business firms during the 1930's made under the sponsorship of the National Industrial Conference Board, the Department of Commerce, and the Treasury Department, indicate that many small firms wanting and badly needing bank credit during these years were unable to obtain it.

The Conference Board study, analyzing 1,755 replies to a questionnaire sent largely to manufacturing corporations, found that most of these companies with a capital of over $1 million reported no dependence on bank credit or no difficulty in obtaining bank credit. Small firms, on the other hand, frequently were refused bank credit or had their credit restricted. As Exhibit 34 shows, over 30% of the companies with assets of less than $50,000 reported credit difficulties, while only about 3% of the companies with assets in excess of $1 million reported credit difficulties.[3]

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[1] The evidence supporting these statements is summarized in J. Brooke Willis, *The Functions of the Commercial Banking System* (New York, King's Crown Press, 1943), pp. 114-121.

[2] For a more detailed analysis see Merwin, *Financing Small Corporations*, pp. 65-79.

[3] L. H. Kimmel, *The Availability of Bank Credit, 1933-1938* (New York, National Industrial Conference Board, 1939), p. 65.

EXHIBIT 34. PROPORTION OF CONCERNS DEPENDENT ON BANKS WHICH REPORTED CREDIT DIFFICULTY IN NICB SURVEY, 1933-1938

Amount of Capital Employed	*(1)* *Concerns Dependent on Banks*	*(2)* *Concerns Reporting Credit Difficulty*	*(3)* *(2) as Percentage of (1)*
Under $50,000	162	49	30.2%
$50,001 – $500,000	532	76	14.3
$500,001 – $1,000,000	107	11	10.3
Over $1,000,000	444	14	3.2
Unclassifiable	62	4	6.5
Total	1,307	154	11.8%

SOURCE: L. H. Kimmel, *The Availability of Bank Credit, 1933-38* (New York National Industrial Conference Board, 1939), p. 65.

A survey of small firms by the Department of Commerce in 1935 confirms this relationship. Over 50% of firms with from 21 to 50 employees reported difficulties in obtaining bank credit; slightly less than 40% of firms with from 101 to 250 employees reported similar difficulties.[1] Similar results were reported by C. O. Hardy and Jacob Viner in a study prepared for the Treasury Department on the availability of bank credit in the Seventh Federal Reserve District.[2]

Hardy and Viner found that the reasons most frequently given by bankers for refusing loan applications were inadequate working capital and inadequate net worth. Inadequate earnings and "loan too slow" were also mentioned as important reasons for loan refusals. In view of the devastating effect of the depression on many small businesses it is in no way surprising that large numbers of small firms were not regarded as bankable risks.

Apparently, however, the credit difficulties of small manufacturers in the 1930's cannot be explained solely in terms of their poor financial condition. The Department of Commerce found in its survey that one-third of the companies which were refused bank credit had both current and net worth to debt ratios of greater than 2:1; for nearly one-fifth of the companies both ratios exceeded 3:1. Moreover, the survey showed that within this select group of firms with favorable credit ratios, the percentage reporting credit difficulties declined as the size of firm increased.

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[1] *Survey of Reports of Credit and Capital Difficulties Submitted by Small Manufacturers* (Washington, Government Printing Office, 1935), p. 29

[2] C. O. Hardy and Jacob Viner, *Report on the Availability of Bank Credit in the Seventh Federal Reserve District* (Washington, Government Printing Office, 1935).

Of the 620 firms which had difficulty in obtaining credit and had net worth-to-debt ratios greater than 2:1, 38% had Dun and Bradstreet credit ratings of "high" and another 26% were rated "good." On the basis of this evidence the Department of Commerce study concluded: "almost two-thirds of these firms might be considered acceptable credit risks on the basis not only of their reported financial condition, but also of their credit worthiness as judged by the efficiency of management and by willingness to pay obligations at maturity."[1] While this evidence cannot be regarded as wholly conclusive, there does appear to have been, to use the words of Hardy and Viner, "a genuine unsatisfied demand for credit on the part of solvent borrowers."[2]

Moreover, even when small firms can secure bank credit they ordinarily must pay more than large firms. As Exhibits 35 and 36 show, small firms usually borrow in small amounts and interest charges average much higher on small loans. Perhaps even more important than high interest charges are the burdensome restrictions often placed on small firms as a condition for securing credit.[3]

THE TERM LOAN

The development of the term loan was one of the important financial innovations of the 1930's. These loans carried maturities of from 1 to 15 years, with maturities, terms, and amortization schedules designed to fit the needs of the borrower. The volume of such loans increased rapidly until by the end of 1940 commercial banks had term loans outstanding in the

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[1] Op. cit., p. 3.

[2] Hardy and Viner, op. cit., p. vi.

[3] In part at least, the higher charges and more restrictive terms on loans to smaller firms merely reflect special risks which often are involved in such loans; they also reflect the fact that the expenses of investigating small firms, in working out details of financing arrangements for them, and in servicing loans made to them are higher in relation to the size of the loan than in the case of loans to larger firms.

EXHIBIT 35. AVERAGE SIZE OF COMMERCIAL LOANS AT MEMBER BANKS, BY ASSET SIZE OF BORROWER

Asset Size of Borrower	*Average Size of Loan*
Under $50,000	$ 3,200
$50,000 to $500,000	12,600
$500,000 to $5,000,000	47,200
Over $5,000,000	227,300

SOURCE: "Survey of Commercial Loans of Member Banks," *Federal Reserve Bulletin*, September, 1942, p. 886. The survey covered $2.2 billion of new and renewal loans of 5,362 member banks during the period April 16-May 15, 1942, inclusive. These banks held 98% of the commercial loans of all member banks.

EXHIBIT 36. AVERAGE SIZE OF COMMERCIAL LOANS MADE AT DIFFERENT RATES BY GROUPS OF BANKS, SEPTEMBER, 1938

	Average Size of Loan by Location of Bank		
*Interest Rate Charged**	*New York City*	*Seven Northern and Eastern Cities*	*Eleven Southern and Western Cities*
1—2%	$88,000	$180,000	$65,000
2—3%	54,000	26,000	24,000
3—4%	21,000	22,000	19,000
4—5%	18,000	13,000	10,000
5—6%	5,000	6,000	6,000
6—7%	3,000	2,000	3,000

*Ranges include the lower percentages shown but not the upper.

SOURCE: *Federal Reserve Bulletin*, January, 1939, p. 18. The survey covered $200 million of new commercial loans made in the period September 1-15, 1938, by banks having $3 billion of commercial loans outstanding on September 14. This is more than three-quarters of such loans held by all weekly reporting member banks in 101 leading cities at that time.

amount of $2,162 million, an amount equal to nearly one-third of the total commercial and industrial bank loans.[1]

In spite of the growing popularity of term loans, banks have restricted these loans almost entirely to large and medium-size firms. As Exhibit 37 shows, through 1940 companies with assets exceeding $1 million have received nearly two-thirds of all term loans in number and about 95% in amount. More than one-half of this credit went to companies with assets of over $50 million. Firms with assets of less than $100,000, on the other hand, were hardly touched.

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[1] N. H. Jacoby and R. J. Saulnier, *Term Lending to Business* (New York, National Bureau of Economic Research, 1942.) See, however, "Survey of Commercial Loans of Member Banks," *Federal Reserve Bulletin*, September, 1942.

Although companies of all sizes needed medium-term credit, the evidence is clear that only large enterprises and, to a lesser extent, medium-size enterprises could utilize this new and desirable form of bank credit to finance their operations. Small firms in general were still limited by the banks to the old line commercial loan.

Indeed, many of the credit refusals of the 1930's appear to have resulted from the fact that a great many companies, primarily small firms, really needed medium-term accommodation but were held to the strict standards of the traditional commercial loan which they could not meet. For instance, in a sample of 1,800 credit applications turned down by commercial banks, Hardy and Viner found that 60% of these applications were for working capital advances intended to finance a continuing series of transactions. Less than 25% were for the strictly short-term needs covered by the traditional commercial loan. The Conference Board study found that more than one-third of the companies which were refused credit needed funds for from one to five years, and some companies wanted even longer-term credit.

Exhibit 37. Term Loans of Commercial Banks by Asset Size of Borrowers, June, 1941

Total Assets of Borrower (In thousands)	*Percentage of Number of Loans Made*	*Percentage o Aggregate Am of Loans Made*
Under $100	11.8	0.4
$100 – $1,000	23.0	3.7
$1,000 – $10,000	28.8	17.1
$10,000 – $50,000	15.8	22.3
$50,000 – $100,000	5.5	13.2
Over $100,000	12.0	40.0
Unclassified	3.1	3.3
Total	100.0	100.0

Source: Analysis of term loans held by a sample of 99 banks on or about June 30, 1941, reported in Neil Jacoby and R. J. Saulnier, *Term Lending to Business* (New York, National Bureau of Economic Research, 1942), p. 151.

Thus, at least during the 1930's, the small firms seem to have been at a serious competitive disadvantage in acquiring short-term and medium-term credit from banks.

INTERMEDIATE CREDIT AGENCIES

Intermediate credit agencies have grown rapidly in recent years as a source of credit for small firms. In many cases these agencies have enabled small firms to carry their inventories by borrowing on field warehouse receipts, to purchase equipment by obtaining installment loans, and to turn over their receivables more quickly by selling them or borrowing against them. Furthermore, proprietors of small firms unable to obtain funds elsewhere may borrow personally from credit companies to tide their businesses over critical periods. Rolf Nugent of the Russell Sage Foundation has estimated that business borrowing from industrial banking companies and regulated small loan companies amounted to $35 million in 1939 and that "a much more substantial volume of business credit is extended by installment finance companies, factors and miscellaneous business financing institutions other than banks."[1]

Even though the credit supplied by specialized lending agencies has been very helpful to many small firms, it must be remembered that the use of this credit often places the borrowing firm at a competitive disadvantage in comparison with concerns that have direct access to bank credit. The interest rate on funds borrowed from intermediate credit agencies is usually much higher than that ordinarily charged by commercial banks, occasionally running as high as 35% to 40%.[2]

TRADE CREDIT

Trade credit, shown on the balance sheet as "accounts payable," was the most important source of current credit in all industrial divisions just before the war. Accounts payable were more than two and one-half times as large as short-term bank loans in manufacturing, wholesaling, and retailing establishments.[1]

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[1] U. S. Senate, Hearing before a Subcommittee of the Committee on Banking and Currency, 76th Congress, 1st Session, on a bill to provide insurance of loans to business, June 21, 1939, pp. 291-293.

[2] See the credit charges quoted in the various volumes published by the Financial Research Program of the National Bureau of Economic Research, and John Cover et. al., *Problems of Small Business*, TNEC Monograph No. 17, pp. 219-222, 270-274, 276.

Small firms on the average depend much more on trade credit than do large firms, probably because of their lower average credit ratings. Moreover, small firms as a class have placed increasing reliance on trade credit in recent years, while the importance of trade credit to large firms has been declining steadily.[2]

The increasing reliance of small firms on trade credit could be explained (a) by a forced liquidation of bank loans and stricter requirements for obtaining bank credit during and after the depression, and (b) by more intensive competition for business on the part of materials and equipment suppliers. Doubt is cast on the second point, however, by the fact that the terms on which trade credit was extended were, in general, unchanged or even tightened.[3]

Some part, at least, of the increased reliance of small firms on trade credit appears to have been caused by the decreased availability of alternative sources of credit. This impression is reinforced by a consideration of the serious competitive disadvantages often entailed by a heavy dependence on trade credit. When a firm is forced to buy goods "on account," its bargaining position is weakened; it must buy where it can get the credit and accept the terms and conditions offered.

LOANS BY PUBLIC AGENCIES

The need of business for additional credit beyond that available from private sources was recognized by Congress early in the 1930's. At that time the Reconstruction Finance Corporation and the Federal Reserve Banks were authorized to make term loans to business firms unable to secure bank credit at established rates. Prior to the war, however, these agencies did not, in fact, make large volumes of loans to small business;

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[1] Carl Kaysen, *Industrial and Commercial Debt—A Balance Sheet Analysis, 1939*, prepared by The Financial Research Program, National Bureau of Economic Research, ms., 1942, and Cover, ibid., p. 275.

[2] Kaysen, ibid., pp. 32, 33; Merwin, *Financing Small Corporations*, pp. 2-5; 65-89; and Koch, op. cit., pp. 4-5, and 71-73.

[3] Merwin, ibid., pp. 72-75.

EXHIBIT 38. LOANS OF THE RECONSTRUCTION FINANCE CORPORATION TO BUSINESS ENTERPRISES,* EXCLUDING ADVANCES TO AID IN NATIONAL DEFENSE, 1934-1941

(In thousands of dollars)

Year	*Amount Authorized*	*Amount Disbursed*	*Amount Outstanding as of December 31*
1934	$ 48,454†	$12,102†	$11,784
1935	72,746	36,577	45,412
1936	41,907	32,304	66,927
1937	17,819	23,425	76,687
1938	127,313	52,452	109,182
1939	104,598	54,263	131,817
1940	33,759	28,408	121,268
1941	36,825	32,316	109,519
Total	$483,421	$271,847	

*Includes loans and participations under Section 5d of the Reconstruction Finance Corporation Act, as amended; in addition, data include loans to borrowers engaged in the fishing industry and loans to business enterprises through mortgage loan companies and banks, both under Section 5 of the same act, as amended.

†Total amount authorized and disbursed from February 2, 1932, to December 31, 1934.

SOURCE: Quarterly Reports of the Reconstruction Finance Corporation.

moreover, most of the funds which they did loan went to medium-size and large companies.

Reconstruction Finance Corporation

As Exhibit 38 shows, in no year in the period 1934-1941 did the Reconstruction Finance Corporation disburse more than $55 million to business firms, and the total amount of its loans outstanding never exceeded $132 million. Indeed, the total amount disbursed during this eight-year period was less than $275 million; this figure includes both its direct loans and its participation in loans made jointly with commercial banks.

Only a small fraction of these loans have been made to small business. As Exhibit 39 shows, by the end of 1941 the RFC had authorized only 5,261 loans of less than $10,000 involving in all only $21.1 million — a strikingly small amount. Moreover, only a little more than half the amounts authorized were actually disbursed.

EXHIBIT 39. LOANS AUTHORIZED BY THE RECONSTRUCTION FINANCE CORPORATION TO BUSINESS ENTERPRISES FROM FEBRUARY 2, 1932, TO DECEMBER 31, 1941, INCLUSIVE, BY SIZE OF LOANS,* EXCLUDING LOANS MADE FOR NATIONAL DEFENSE PURPOSES

Size of Loans	*Number of Loans*	*Percentage of Total Number*	*Amount Authorized by RFC (In thousands)*	*Percentage of Total Amount Authorized*
$5,000 and under	3,704	37.6%	$ 8,616	1.8%
$5,001 – $10,000	1,557	15.8	12,505	2.6
$10,001 – $25,000	1,892	19.2	34,006	7.0
$25,001 – $50,000	1,105	11.2	43,291	9.0
$50,001 – $100,000	797	8.1	62,402	12.9
$100,001 – $200,000	422	4.3	63,332	13.1
$200,001 – $500,000	280	2.8	89,556	18.5
$500,001 – $1,000,000	63	0.6	46,705	9.7
Over $1,000,000	44	0.4	123,007	25.4
Total	9,864	100.0	$483,421	100.0

*Includes loans and participations and agreements to purchase participations under Section 5d of the Reconstruction Finance Corporation Act, as amended; loans to borrowers engaged in the fishing industry under Section 5 of the same act, as amended; and loans to business enterprises through mortgage loan companies and banks under Section 5 of the same Act as amended. The latter two classes of authorization account for $17,399,475. Of the $483 million authorized as shown above, $271 million was actually disbursed. The total amount outstanding as of December 31, 1941, was $110 million.

SOURCE: Report of the Reconstruction Finance Corporation, Fourth Quarter, 1941, pp. 7, 61.

Many factors are responsible for the limited flow of funds from the RFC to small business. An unwieldy administrative procedure made the routine of getting loans slow and cumbersome — thus preventing many firms from applying for loans. Others withdrew applications in preference to meeting the conditions of the loan agreements offered by the RFC. Many applicants used an authorization for an RFC loan to convince their local bankers that they were satisfactory credit risks. And, perhaps most important of all, many applicants simply could not meet the credit standards of the RFC.

Industrial Loans of Federal Reserve Banks

The Glass-Steagall Banking Act authorized the Federal Reserve Banks to lend money directly to business firms unable

EXHIBIT 40. INDUSTRIAL LOANS OF THE FEDERAL RESERVE BANKS, 1934-1941

(In thousands of dollars)

	Applications Approved			*Amounts Outstanding (end of year)*		
Year	*Number*	*Aggregate Amount*	*Average Amount*	*Direct Loans*	*Participations*	*Commitments*
1934	984	$49,634	$50.4	$13,589	$1,296	$8,225
1935	1,009	74,859	74.2	32,493	8,778	27,649
1936	287	15,336	53.4	25,526	7,208	20,959
1937	126	11,158	88.6	20,216	7,238	12,780
1938	247	24,026	97.3	17,345	12,722	14,161
1939	128	13,209	103.2	13,683	10,981	9,220
1940	127	24,288	191.2	9,152	6,386	5,226
1941	294	67,350	229.1	10,337	19,600	14,597
Total	3,202	$279,860				

SOURCE: *Federal Reserve Bulletin*, January, 1945, p. 43.

to obtain credit for working capital purposes elsewhere on a reasonable basis. As Exhibit 40 shows, this program got under way more rapidly than that of the RFC; about 2,000 applications for loans amounting to nearly $125 million were approved by the end of 1935. At that time $32 million of loans were outstanding, but this amount thereafter declined to $10 million by the end of 1941.

CHAPTER IX

Implications for Postwar Fiscal Policy

The principal conclusions of this book, if sound, have important implications for much recent fiscal analysis. They emphasize the significance of the methods by which the savings of society are channeled to the places where these savings are needed to finance business expansion and other new private investment. If a high level of private investment is to be achieved, the funds needed to finance this investment must be available: (a) to the specific firms and individuals desiring to undertake new investments; (b) at the time and in the amount in which the funds are needed; and (c) on the terms, financial and otherwise, which make them acceptable to individual business managements for use in the particular expansions contemplated.

Even though the *over-all* supply of investable funds is entirely adequate and all other factors are favorable, a high level of private investment can be maintained only if all three of the above conditions are also simultaneously satisfied. Conversely, a failure to satisfy these three conditions may easily result in very serious capital shortages for important groups of firms, and consequently in severe restrictions on the volume of investment, at a time when there is general oversavings in the economy.

Failure to recognize these facts has resulted in much confusion. On the one hand, proponents of the "oversavings" thesis have frequently argued that shortages of venture capital could not have been an important restrictive influence during the 1930's because of the general tendency toward oversavings during this period. On the other hand, businessmen, familiar with the difficulties of financing new projects, frequently have ridiculed the oversavings explanation for low levels of activity in the 1930's.

Both of these views ignore serious imperfections in the capital market. In reality, the fact that substantial amounts of new savings were being accumulated by individuals during the 1930's is perfectly consistent with a crippling shortage of capital for a great many investment undertakings. Savings do not flow more or less automatically to the places where they are needed to finance business expansion. Indeed, the savings habits of individuals and the investment policies of many financial institutions frequently prevent these savings from satisfying the capital requirements of firms in need of funds for employment-creating investments.

Stated differently, the findings of this study have an important bearing on two critical postwar fiscal problems: (1) Can the American economy find outlets in private investment for the tremendous volume of savings which it accumulates at high levels of business activity and national income? (2) Will new developments and growing enterprises be able to acquire venture capital on acceptable terms? Unless both of these questions can be answered affirmatively, the outlook is dark for postwar prosperity financed primarily by private enterprise.

It would be relatively easy to design a tax system that would increase the attractiveness of investments in risky undertakings *or* that would hold savings within reasonable bounds. But the extraordinarily difficult task confronting postwar tax planners is the necessity of achieving both of these objectives simultaneously — and at the same time of fulfilling the other requirements of a good tax structure. The difficulty of this task will be magnified if individual investors continue to display an aversion to assuming the risks of business ownership.

Temporarily, these problems may be eased by the tremendous amounts of liquid funds accumulated by individuals and business firms during the war — provided that these funds are not dissipated by price rises and reconversion difficulties. Likewise, declining rates of interest on relatively riskless investments may induce many individuals to assume greater risks in an effort to maintain what they regard as a necessary income from their investments. No one can evaluate the power of these influences at the present time.

But one thing does appear clear. They offer little hope for a permanent solution of the basic problems of the small firm. There simply is no financial machinery in this country equipped to handle efficiently capital issues of less than $100,000 — or perhaps even of somewhat larger amounts.[1] Various plans have been offered for making permanent capital more readily available to small firms — most of them involving Federal assistance or guarantees of some sort. When the investment bankers publicly proclaim their inability to provide venture capital to small firms, it becomes difficult to deny that the government may have to take some steps in this direction!

But such a policy might be fraught with serious dangers. Moreover, it would not go to the root of the problem. *The basic financial need of small business is the ability to expand from retained earnings.* Small companies cannot hope to compete in the capital market on an equal basis with established companies unless the Federal government is prepared to undertake outright subsidization of the capital needs of small business. Most people would agree that such a policy would be clearly undesirable.

It therefore seems imperative that the postwar tax structure permit small firms to grow from retained earnings until they become large enough to have reasonable access to the capital market. Fortunately, important steps in this direction could be taken without greatly reducing the revenue yield of the tax structure.

For instance, it might reasonably be contended that the corporate tax rate should not exceed 20% on incomes of less than $100,000. But the postwar corporate rate may have to be as high as 40%, conceivably even higher, to meet postwar revenue needs. Suppose that the over-all corporate rate is set at 40%, but that the first $100,000 is taxed at only 20%. The net loss in revenue from such a tax would be less than 15% of the yield of a flat-rate 40% tax.[2] In other words, the concentration of corporate incomes in the hands of very large corporations is so extreme that substantial reductions could be made in the tax rates on companies with small incomes without greatly reducing Federal revenues.

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[1] See, for instance, the recent statement to this effect by the Small Business Committee of the Investment Bankers Association of America, entitled *Capital for Small Business.*

[2] This estimate assumes that corporate income will have the same relative distribution as in prewar years. Computations made for the years 1926-1940 indicate that the revenue yield of the above plan would be 12% to 17½% less than the yield of a flat-rate 40% tax, with a marked tendency for the relative loss of revenue

(Footnote continued on next page)

Other tax revisions might also be taken to relieve the burden of high taxes on small companies, among them accelerated depreciation, a clarification of the treatment of research and development expenditures, longer loss carry-overs, removal or mitigation of the double taxation of dividends, greater deductibility of capital losses, and an averaging device for the computation of personal income taxes. Some of these revisions, such as an extension of the loss carry-over, are clearly desirable; others, such as accelerated depreciation, present more difficult problems. A careful discussion of the merits of these proposals would be the subject for another book — and cannot be undertaken here. None of them, however, would be an effective substitute for differential tax reductions on the retained earnings of *small* business — the one positive recommendation of this study.

The word *small* is deliberately italicized in the preceding sentence. This book has not examined the effect of corporate taxes on large corporations, except to point out that corporate taxes are much less repressive on large companies than on small firms. On the basis of this study, therefore, no recommendations are made as to the proper taxation of large corporations.

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to become smaller in years of high business activity. Similarly, a flat 40% tax with an exemption of the first $25,000 of income showed revenue losses ranging from 13% (in good years) to 19% of the revenue yield of a flat 40% tax with no exemption. This estimate does not allow for secondary effects such as the incorporation of unincorporated firms which would be induced by the exemption.

PART I

INTRODUCTORY STATEMENT

Part II is essentially a source book from which the illustrative cases of Part I have been taken. It has been necessary to present data from these cases in highly condensed form in Part I in order to preserve the continuity of the analytical discussion.

But for many purposes an integrated treatment of the individual-company experiences, company by company, is equally important. For instance, by giving a rounded treatment of individual cases detailed support is possible for many of the statements presented largely as assertions in Part II. Moreover, the following case studies illustrate fundamental problems of business motivation and management policy as well as tax effects. The cost of this method of organization is a degree of repetition, but this choice appeared to be the lesser of unavoidable evils.

CHAPTER X

Clarkson Manufacturing Company[1]

THE Clarkson Manufacturing Company, a producer of formed plywood products, was organized in March, 1937, by S. J. Clarkson with an original paid-in capital of $21,000. Within seven years of its organization the company was operating at an annual sales volume of $6 million.

Tax considerations have been the determining factor in various important management decisions at critical stages in the company's development. If Mr. Clarkson had not been disposed to take extraordinarily heavy financial risks, involving both the future of the company and his other personal assets, the effect of taxes would have been even more pronounced. The tax aspects of the experience of the company can best be told, however, as part of the general story of the company's development.

EXPERIENCE OF MR. CLARKSON PRIOR TO FORMATION OF CLARKSON MANUFACTURING COMPANY

Mr. Clarkson's first industrial activities were in the field of radio engineering, largely as a result of training which he received in the Navy in World War I. Around 1934, however, he became impressed by the potential market for formed plywood products.

Mr. Clarkson wanted to exploit this market, but he did not have the capital to start a company of his own. He overcame this difficulty by negotiating an agreement with a Michigan company under which he was to sell formed plywood serving trays on a commission basis. In addition to his sales services Mr. Clarkson supplied the manufacturing know-how and several hundred dollars to the Michigan company. This company, in turn, undertook the actual manufacture of the trays. The first trays produced were sold by Mr. Clarkson directly to department stores.

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[1] The names and locations cited in this chapter have been disguised.

After a few months Mr. Clarkson became convinced that the market for the trays was very large, and he decided to expand the scope of his operations. But the Michigan company was not interested in manufacturing on the scale on which Mr. Clarkson wanted to sell. In 1935, therefore, he contracted for a larger output with a different manufacturer, an Illinois company. Under this agreement Mr. Clarkson assumed responsibility for the engineering work, the production supervision, and the selling of the trays. In return, he was to receive a 5% commission on all sales. During 1935 sales far exceeded expectations, amounting to $280,000. For one reason, Mr. Clarkson had negotiated a contract with a manufacturer of household electrical appliances under which this company agreed to purchase his entire output during the remainder of the year.

The Illinois company objected to paying the full 5% commission on this volume of sales. Because of this disagreement with the Illinois company, Mr. Clarkson had to bid in competition with it for the 1936 business of the appliance manufacturer. He obtained a contract for its 1936 orders and persuaded the Michigan company to manufacture the trays for him.

ORGANIZATION OF CLARKSON MANUFACTURING COMPANY

Mr. Clarkson realized that he would have to meet a low competitive bid from the Illinois company in 1937. He therefore quoted a very low price to the appliance manufacturer for its 1937 orders and submitted, together with his bid, plans for the organization of his own company to manufacture the trays. These plans called for about $32,000 of capital beyond the $4,000 which Mr. Clarkson was able to advance.

The appliance manufacturer accepted Mr. Clarkson's proposition and agreed to loan him the funds which he needed. In exchange for his personal note Mr. Clarkson was given a loan of $17,000. The Clarkson Manufacturing Company was

EXHIBIT 41. CLARKSON MANUFACTURING COMPANY: COMPARATIVE STATEMENT OF PROFIT AND LOSS

	Fiscal Year Ended March 31, 1938	*April 1, 1938, to December 16, 1938*
Net Sales	$255,999	$251,695
Less: Cost of goods sold	190,295	189,138
Selling and administrative expenses	49,587	40,805
Operating profit	16,117	21,752
Plus: Other income		1,393
Less: Other expenses	303	411
Net income before Federal income tax	15,814	22,734
Less: Provision for Federal income tax	1,900	3,226
Net income after Federal income tax	13,914	19,508

SOURCE: Company records and audit statements.

then organized as a Delaware corporation with a paid-in capital of $21,000 — consisting of the $17,000 advanced by the appliance manufacturer and $4,000 of equipment supplied by Mr. Clarkson. The stock in this company was entirely owned by Mr. Clarkson, but it was pledged as collateral to the appliance manufacturer. The appliance manufacturer then loaned another $15,000 directly to the newly formed corporation to provide its immediate working capital requirements.

FINANCIAL POSITION OF CLARKSON MANUFACTURING COMPANY, 1937-1938

Shortly after the organization of his company in March, 1937, Mr. Clarkson succeeded in leasing a suitable plant under favorable terms from the city of Middletown, Illinois. Production was commenced in June, and a profitable level of operations was established by August, 1937, some five months after the company was organized. Within a year Mr. Clarkson had paid off his entire personal debt of $17,000, and the company had made a substantial payment on the corporate notes held by the appliance manufacturer. In April, 1938, this manufacturer agreed to give Mr. Clarkson its business for the next year without competitive bidding if Mr. Clarkson would redeem the outstanding corporate notes which it held. He was able to do so by obtaining a bank loan. Completion of this transaction

EXHIBIT 42. CLARKSON MANUFACTURING COMPANY: BALANCE SHEET, NOVEMBER 30, 1938

Current Assets		
Cash		$ 5,055
Accounts receivable		13,380
Inventories		7,523
Total Current Assets		$25,958
Fixed Assets		66,389
Deferred Charges		3,304
Special Tools and Dies		3,072
Other		950
Total Assets		$99,673
Current Liabilities		
Notes payable		$ 9,749
Accounts payable		12,586
Accrued liabilities		3,484
Reserve for income taxes		3,700
Total Current Liabilities		$29,519
Mortgage on Plant and Real Estate		14,000
Net Worth		
Capital stock and paid-in capital	21,245	
Earned surplus	34,909	56,154
Total Liabilities		$99,673

SOURCE: Company records and audit statements.

restored 100% control of the Clarkson Manufacturing Company to Mr. Clarkson.

The financial position of the company in late 1938 is shown in Exhibits 41 and 42. Net income after taxes for the 20-month period ending in December, 1938, amounted to about $33,500, after the payment of a substantial salary to Mr. Clarkson. Net sales were running at an annual rate of about $350,000 at the end of this period. But, as Exhibit 42 shows, the company was still in a very precarious financial position. Its current liabilities actually exceeded its current assets near the end of 1938.

LIQUIDATION OF CORPORATION, FORMATION OF LIMITED PARTNERSHIP, AND TAX IMPLICATIONS THEREOF

Important changes in the ownership and organization of the company occurred late in 1938. In November Mr. Clarkson made a gift of 49% of the stock of the company to his wife.

In December the corporation was dissolved and a limited partnership was formed with a stated capital of about $50,000. Mr. Clarkson contributed 51% of this capital and his wife 49%.

The shift to the partnership form of organization was made largely to avoid the double taxation of corporate profits and other taxes and expenses connected with operating in the corporate form. Indeed, the business would have been organized as a partnership in 1937 if the appliance manufacturer had not insisted on the corporate form of organization as a condition of its loans to Mr. Clarkson and the corporation.

While Mr. Clarkson's gift of stock to his wife was motivated principally by personal reasons, it could be anticipated that the resulting division of income would minimize the impact of the progressive rates of personal income tax. The total tax liability of two incomes of $50,000 each, for example, is substantially less than the tax liability on one income of $100,000.

Whether the division of this income between Mr. Clarkson and his wife will be recognized as legally valid for tax purposes is still uncertain. The Bureau of Internal Revenue has questioned the legality of the procedure in Mr. Clarkson's case, and its finding has been upheld by the Tax Court.[1]

The ultimate tax effects of these decisions cannot be predicted even now, nearly seven years after the decisions were made. Whether a long-run tax saving will result depends, among many other considerations, on the future course of corporate and personal income tax rates, on changes that may be made in the estate, gift, and capital gains taxes, on the longevity of the partners, and on the postwar performance of the business. No attempt will be made to examine these exceedingly complex issues in this report.

Certain aspects of the taxation of partnership incomes, however, must be explained at this point since they bear directly on the financial problems and growth of the enterprise since 1939.

No income tax is levied on partnerships as an entity. Rather each individual partner is taxed on his distributive share of the partnership earnings whether or not these earnings are withdrawn from the business. That is to say, if a partnership earns $200,000 in a given year and the ownership of the partnership is divided on a 60%-40% basis between two partners, one partner will report $120,000 of income in his personal return on account of the partnership earnings and the other will report an income from the partnership of $80,000.

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[1] In general, the tax status of family partnerships is highly complex and uncertain. In several recent decisions the Tax Court has been divided in its opinions. But the subtleties of this issue need not be investigated here. For a discussion of the problem see Randolph Paul, "Partnerships in Tax Avoidance," *The George Washington Law Review*, February, 1945, pp. 121-143, and also articles in recent issues of *Taxes*.

Special problems arise when the taxable year of the partnership is different from that of the individual partners. In this event the partner reports in his personal income tax return his distributive share of the income of the partnership *for its taxable year ending within the partner's taxable year.* In the Clarkson case, for instance, the limited partnership had a fiscal year ending on June 30. Mr. Clarkson and his wife reported their personal income on a calendar year basis. Thus, the income of the partnership for, say, the fiscal year ending June 30, 1940, would be reported in the personal income tax returns of the partners for the taxable year ending December 31, 1940.

This provision has two very important effects. The first has to do with tax rates. Income earned by the Clarkson partnership during the last six months of 1939, for instance, was taxed to the partners at 1940 rates. And so on for later years. In years of rapidly rising tax rates, such as prevailed from 1939 to 1943, a substantial increase in total tax liabilities results from this treatment.[1]

The second major effect of a divergence between the taxable year of a partnership and that of its partners has to do with the *timing* of tax payments. Under these circumstances a long delay occurs between the receipt of taxable income and the actual payment of the tax liabilities on this income. In the Clarkson case, for instance, tax payments on the income of the partner-

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[1] The treatment of partnership income in this respect is directly contrary to that of corporations filing on a fiscal year basis during the same period. The tax law with respect to corporations provided that a corporation is taxable at the rates in effect at the *beginning* of the fiscal year of the corporation. Thus, to take an extreme instance, a corporation with a fiscal year beginning on December 1, 1939, would be taxed at 1939 rates even though 11 months of its fiscal year fell in calendar year 1940. Thus, corporations reporting on a fiscal-year basis during the period 1939-1942 had a tremendous advantage over those reporting on a calendar-year basis. This discrimination was belatedly corrected as of July 1, 1942, by the Revenue Act of 1942.

EXHIBIT 43. NET SALES AND NET INCOME BEFORE INCOME TAXES OF CLARKSON MANUFACTURING COMPANY, JANUARY 1, 1939, TO JANUARY 31, 1945

Year	*Net Sales*	*Net Income before Federal Taxes*
Six months ending June 30, 1939	$ 107,052	$ 14,071
Year ending June 30, 1940	375,694	36,196
Year ending June 30, 1941	542,379	80,685
Year ending June 30, 1942	792,705	65,248
Year ending June 30, 1943	1,219,803	126,602
Seven months ending January 31, 1944	1,767,250*	163,462†
Year ending January 31, 1945	5,687,966‡	480,883§

*Annual Basis — $3,029,571.
†After renegotiation refund of $50,000.
‡After voluntary refunds of $1,271,971 and provision for renegotiation of $215,000.
§After provision for renegotiation of $215,000.

ship for the fiscal year extending from July 1, 1939, to June 30, 1940, would be made from March 15, 1941, to December 15, 1941. There would be a lag of about 18 months between the time when the income was earned and when the tax liabilities on that income were actually paid. *This delay in the payment of taxes has been a vitally important factor in the expansion of the company.*

EXPANSION OF PARTNERSHIP: 1939-1945

So much by way of digression on the tax background of the Clarkson partnership. As Exhibit 43 shows, the partnership has experienced a rapid, continuous growth from its formation in January, 1939.[1] By no means all this expansion is attributable to the war. Indeed, a sales volume of nearly $800,000 of commercial products was attained in fiscal year 1942.

Introduction of New Products

The company's expansion can be ascribed primarily to the introduction of new products rather than to a greatly expanded output of products being manufactured when the partnership was formed. For instance, laminated staves and headings for beer barrels were introduced within a few weeks after the partnership was formed. The barrels made from these staves and heads are stronger and lighter than those traditionally constructed from solid wood stock. Sales of barrel staves and heads rose rapidly until by fiscal year 1942 they amounted to $570,000, or over 70% of net sales. By the end of the year and for several months thereafter sales of this product were maintained at a level equal to an annual volume of approximately $1 million. Shortage of materials forced the curtailment of the operation late in 1942, but limited production has been maintained throughout the war.

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[1] In January, 1944, as explained below, the limited partnership was dissolved and a general partnership was organized. This change, however, did not affect the business as an operating unit.

In 1941 Mr. Clarkson faced a critical decision — that of continuing the manufacture of his peacetime products at a relatively low volume during the war or of converting to an expanded scale of wartime production.

The first choice probably would have assured the continued postwar existence of the business, but it offered no prospects for large profits in the immediate future. It also appeared dull and uninteresting to Mr. Clarkson as compared with the excitement and satisfaction of a direct contribution in the war effort.

The second choice, on the other hand, had the attraction of a stimulating venture in an important new field. It also presented excellent opportunities for a large-scale expansion and high profits. But these objectives could be achieved only by successfully running a gantlet of extremely heavy risks.

Mr. Clarkson, as might have been predicted, made the venturesome decision. In particular, he decided to submit a bid for an airplane propeller contract. He made the low bid by a slight margin and received the contract even though he had had no previous experience in the manufacture of propellers and was only able to submit a blueprint of his proposed production program. He received a firm contract subject to the provision that the first propeller submitted must meet a rigid performance test.

The development work on the propeller — impregnated plywood blades formed under heat and pressure and mounted in a specially designed steel hub — required over a year. But it was successfully completed, and the propeller was sold in

Exhibit 44. Current Assets, Current Liabilities (Exclusive of Federal Income Taxes), and Ratio of Current Assets to Current Liabilities of Clarkson Manufacturing Company

Date	*Current Assets* (1)	*Current Liabilities (Exclusive of Federal Income Taxes)* (2)	*Ratio of Current Assets to Current Liabilities (Exclusive of Federal Income Taxes)* (3) = (1) ÷ (2)
January 1, 1939	$ 29,361	$ 41,225*	0.71
June 30, 1939	38,674	48,383†	0.80
June 30, 1940	56,212	63,607	0.88
June 30, 1941	108,307	90,790	1.19
June 30, 1942	216,607	267,778	0.81
June 30, 1943	574,176	524,917	1.09
January 31, 1944	762,594	595,545	1.28
January 31, 1945	1,589,884	1,328,896	1.20

*Includes item of $3,700 representing reserve for Federal taxes on predecessor corporation.

†Includes item of $2,414 representing reserve for Federal taxes on predecessor corporation.

large volume in 1943 and 1944. In these years the company also undertook the production of other war products, concentrating on radio and radar antennae. By January, 1944, 85% of the company's output consisted of war products, and 93% by January, 1945. The Army-Navy "E" was twice awarded for excellence in production.

Financial Problems of Expansion

Throughout this period of expansion Mr. Clarkson's financial resources were strained to the limit. As Exhibit 44 shows, the company had a negative net working capital during much of the period from 1939 through 1944. The ratio of current assets to current liabilities varied from a low of 0.71 to a meager 1.28. Moreover, current liabilities, as reported in the company's balance sheets, *do not include* allowances for income tax liabilities accruing to the partners as a result of the partnership earnings. Exhibit 44 therefore presents an unduly favorable picture of the financial position of the partnership and partners, considered as a unit.

This conclusion is strengthened by an examination of the capital accounts of the partners. Their withdrawals have been

EXHIBIT 45. CLARKSON MANUFACTURING COMPANY: BALANCE SHEET, JUNE 30, 1941

Current Assets		
Cash		$ 5,994
Accounts receivable		25,173
Inventories (mortgaged)		76,811
Other		329
Total Current Assets		$108,307
Land, Buildings, and Equipment (mortgaged)		171,517
Other assets		2,989
Total Assets		$282,813
Current Liabilities		
Notes payable to banks – secured by chattel mortgage on inventories, machinery and equipment		$ 17,500
Notes payable to employees		1,050
Installment obligations on equipment costing $14,000, under title-retaining contracts		3,370
Accounts payable		56,034
Accrued expenses		12,836
Total Current Liabilities		$ 90,790
First Mortgage 6% note maturing 1948		14,000
Capital		
Capital investment, limited and general partner	$51,020	
Appreciation from revaluation of fixed assets	47,831	
Undrawn profits	79,172	178,023
Total Liabilities		$282,813

SOURCE: Company records.

consistently less than the current accruals to their personal income tax liabilities resulting from the partnership earnings. Indeed, the Clarksons have withdrawn only enough from the partnership to meet their personal income tax payments as they have come due. They have relied on future earnings of the partnership to provide the cash with which to pay the constantly increasing amount of their current income tax accruals. Mr. Clarkson's salary from the partnership covered their living expenses.

The decision to undertake the production of airplane propellers illustrates in a specific context the degree of risk which Mr. Clarkson was willing to assume in order to expand his business. This decision was made early in the fiscal year beginning on July 1, 1941. As may be seen from Exhibit 45, the company was already in a very tight financial position at the beginning of this year. Its current assets exceeded its current liabilities, exclusive of reserves for Federal income taxes, by only $17,500, and its current ratio was 1.19. Cash and accounts receivable amounted to less than 35% of current liabilities. Inventories and fixed assets were mortgaged. By any ordinary standards of financial analysis the only reasonable course of action would have been for the company to use its current profits to bolster its badly strained working capital position.

Mr. Clarkson, however, chose the opposite course of action: he undertook a large-scale program of war production and succeeded in acquiring a bank loan of $150,000 to finance it. This loan was obtained from a group of local and Chicago banks at an interest rate of 6%. It was secured by assignment of accounts receivable of $44,000, by a chattel mortgage on machinery costing $16,000, and by assignment of prospective proceeds from the propeller contract. The soundness of the loan clearly depended on Mr. Clarkson's ability to meet the specifications of the propeller contract. The loan, which was not protected by a government guarantee, was manifestly based on the bankers' confidence in Mr. Clarkson's ability to perform rather than on his financial condition at the time of application.

During fiscal year 1942 Mr. Clarkson continued to expand his normal peacetime operations and, in addition, did the necessary developmental work on the propeller contract. Although his operations continued to be highly profitable, his working capital position became progressively tighter. By the end of the year his balance sheet showed current assets of $216,607 as against current liabilities, exclusive of Federal income taxes, of $267,778. The factors contributing to the deterioration in his working capital position during the year may be summarized as is shown in Exhibit 46.

Clearly the solvency of the firm and of Mr. Clarkson as an individual depended on the successful completion of the propeller contract. Certain bankruptcy would have been the inevitable consequence of failure in this venture into war production.

Exhibit 46. Clarkson Manufacturing Company: Factors Contributing to Deterioration of Working Capital Position

Working capital provided:		
Net income		$ 65,000
Add: provisions for depreciation and amortization which decreased income but did not involve working capital outlay		20,000
Total		$ 85,000
Working capital expended:		
Expenditures for additions and betterments of plant facilities	$82,000	
Expenditures on deferred development costs	46,000	
Other expenditures	3,000	
Partners' withdrawals (for income taxes)	23,000	
Total		$154,000
Decrease in working capital during year		$ 69,000

Source: Company records.

But the propeller was successfully developed and was manufactured in substantial volume in 1943 and 1944. As a result of this successful production, the financial position of the firm steadily improved after June 30, 1942. In spite of this improvement, however, the company's financial position remained tight for some time. By January 31, 1944, when the limited partnership was reorganized to form a general partnership, the current ratio was 1.28. After taking into account the excess of the partners' income tax liabilities arising from the partnership earnings over the withdrawals of the partners, the company still had little or no net working capital. The balance sheet at the end of the last fiscal year, January 31, 1945, shows no marked change with a current ratio of 1.20 and net working capital of $261,000.[1]

As part of an analysis of the financial problems of expansion, a word should be said as to the effect of renegotiation on the company. For the year ending June 20, 1943, the company was given clearance by the Price Adjustment Board. Its net income before taxes, but after Mr. Clarkson's salary of $25,000, amounted to slightly more than 10% of net sales. The Price Adjustment Board decided that this rate of profits was not excessive in view of the quality of production, the low cost of operation, and the high personal risks which Mr. Clarkson had assumed.

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[1] However, an inventory of materials and tools acquired during the year for civilian products is temporarily not carried as a current asset, since manufacture is restricted by government war regulations. Its inclusion in current assets would increase the current ratio to 1.45.

For the seven months' period ending January 31, 1944, a renegotiation settlement involving a refund of $50,000 was agreed upon. After the reduction in the partners' personal income tax liabilities is taken into account, however, the net cost of this refund to the Clarksons came to only around $5,000. The company's income statement for the year ending January 31, 1945, shows a provision for a renegotiation refund of $215,000 and voluntary refunds of $1,271,971, on a sales volume before these deductions of $7,174,937.

FORMATION OF GENERAL PARTNERSHIP AS OF FEBRUARY 1, 1944

The limited partnership was dissolved at the close of business on January 31, 1944. On the following day a general partnership was formed with a capital of $500,000. Mr. Clarkson and his wife each contributed $175,000 to the new partnership, and $150,000 was contributed by five other individuals. Inasmuch as the net assets of the limited partnership amounted to $433,476, the Clarksons were able to withdraw $83,476 in cash from the business, the excess of the net assets of the limited partnership over the $350,000 which they contributed to the general partnership.

The remaining $150,000 was divided as follows: Three key employees purchased a 5% ownership interest in the business for $25,000 each. They borrowed the major portion of these funds on notes guaranteed by Mr. Clarkson. These notes were repaid out of profits by January, 1945, but no reserves were set aside for the payment of the tax liabilities on these profits. Consequently, if the business should cease to be profitable soon after January, 1945, these minority partners would be hard pressed to meet their tax obligations.

A 10% interest was acquired for $50,000 by the father of the owner of patents covering an automatic electric toaster, from whom Mr. Clarkson had acquired exclusive postwar manufacturing rights. The owner of the patents had declined to accept a personal interest in the partnership. He had a substantial income from other sources and did not believe that the net return from such an investment, after the payment of his personal income taxes, would compensate him for the risk involved in an ownership interest in a general partnership. Mr. Clarkson expected to continue to have business relations with this man, however, and thus was glad to have his father admitted to the general partnership.

The remaining 5% interest was purchased for $25,000 by Mr. Clarkson's sister.

Two considerations motivated this reorganization. First, Mr. Clarkson placed a high value on the services of the three employees who were brought into the firm. By giving them an ownership interest he obviously increased the probability that they would remain with the company indefinitely. Likewise, he was eager to maintain a working relationship with the owner of the appliance patents. Second, the formation of the general partnership relieved somewhat the financial pressure on the Clarksons' personal resources.

Throughout the expansion of the company the Clarksons had to rely on future earnings of the partnership to provide the cash for their personal tax payments. The difficulty of meeting these payments was increased by the Current Tax Payment Act of 1943. This Act reduced the lag between the receipt of partnership earnings and the payment of taxes on these earnings from about 18 months to about 6 months. It also resulted in a partial doubling up of tax payments, since 25% of the tax on 1942 or 1943 earnings, whichever was smaller, was not forgiven. In March, 1944, the Clarksons were expected to pay one-fourth of their estimated taxes on their 1944 income plus one-eighth of their 1942 taxes. The forgiveness feature of the Act, however, did substantially reduce the accrued tax liabilities of the Clarksons.

By shifting to a general partnership with a fiscal year ending on January 31, the Clarksons improved their personal financial position in several ways. First, the acquisition of new capital enabled them to withdraw about $85,000 in cash from the business without impairing the company's working capital position. Indeed, even with this withdrawal, the company had a net cash increase of about $65,000 to bolster its financial position. Secondly, tax payments in 1944 were based on a fiscal year of seven months (June 30, 1943-January 31, 1944) rather than on a fiscal year of twelve months. Finally, even under the Current Tax Payment Act, there is a lag of about 11 months between the accrual and actual payment of tax liabilities on the earnings of a partnership with a fiscal year ending January 31. This lag would have been only about 6 months if the partnership had continued on a fiscal year ending June 30.

POSTWAR PLANS

Mr. Clarkson plans to continue the development of laminated products after the war. He believes that this field offers many opportunities in addition to trays and barrel staves.

In order to achieve a greater diversity of products, however, Mr. Clarkson intends to enter other fields as well. In particular, he believes that the automatic toaster, for which the company has acquired the license, will be substantially superior to prewar toasters. The company has already acquired some inventory stock and tools for this product so that it will be in a position to commence production at an early date after wartime restrictions are lifted. This stock was obtained on exceedingly favorable terms. Another company which held this inventory at the outbreak of war was willing to liquidate it at a low price in order to acquire working capital for its war production. It could afford to sell at a low price since reductions in tax liabilities offset most of its loss on the sale.

Mr. Clarkson's intention is to manufacture the toaster under the company's own trade name and to sell it to large wholesale distributors. He is anxious to achieve a greater diversity of sales outlets than he had before the war, at which time almost all his sales were made to two companies. Before the war he would have been in a desperate position if either of these companies had decided to cancel its contracts or to drive an unusually severe bargain.

Mr. Clarkson is not now interested in selling his business.

During the war he received several feelers of offers to sell out to companies with a large excess profits tax base and with low earnings. Since he intended to continue in business after the war, he did not investigate these possibilities with any care; indeed, he did not even bother to ascertain what terms could be obtained from a wartime sale.

Mr. Clarkson recognizes the desirability of acquiring new outside capital; however, he hopes to be able to maintain the company's present capitalization until it is able to establish several additional lines of products to be sold under the Clarkson trade name.

After the line of products is broadened, he believes that the company will be in a position to take in a substantial amount of new equity capital on reasonably favorable terms. To do so the company would be reorganized as a corporation. If new capital is acquired, Mr. Clarkson may decide to liquidate part of his own investment by taking a capital gain. But he is not interested in admitting new capital until his business has matured to the point where he believes its potentialities are recognized by the capital market.

EFFECT OF FEDERAL TAXES ON GROWTH OF COMPANY

1. The outstanding fact about the experience of the Clarkson Manufacturing Company is the rapid rate of growth which it has been able to achieve in spite of high taxes. The following factors have been of critical importance in making this growth possible.

a. Mr. Clarkson has always been able to sell the entire output of both his commercial and war products at a satisfactory profit margin. The limitations on his expansion have been primarily of a financial and production nature rather than of a marketing nature.

b. Mr. Clarkson has consistently taken extremely heavy risks in his effort to expand his business. These risks have been assumed in spite of the fact that the tax structure creates strong incentives in favor of a safer course of action. Every available dollar has been used in the expansion of the company's activities. Current profits have repeatedly been sunk in fixed assets and developmental work; future earnings have been relied on to meet tax payments on these profits as they came due. During most of the period from 1939 through 1944, a single major delay in Mr. Clarkson's production program or a temporary inability to market his products would have meant almost certain bankruptcy. If Mr. Clarkson had not been willing to assume this degree of risk in spite of the tax structure, the growth of his company would have been much less rapid.

c. Since Mr. Clarkson's plans were not inhibited by unfavorable tax incentives, *taxes influenced his expansion primarily through their effect on the amount of capital which he had available for investment in his business.* As a matter of fact, taxes did not constitute a major cash drain for Clarkson until about 1942. By this time several critical stages in his program of expansion had already been successfully passed.

During 1937 and 1938, when the company was organized as a corporation, both corporate and personal income taxes were moderate — at least in comparison with present and prospective postwar rates. Even in these years, however, the double taxation of dividends was burdensome, especially since Mr. Clarkson had to distribute a large percentage of his earnings in order to obtain the funds needed to repay his original loan from the appliance manufacturer.

After the company was organized as a partnership in late 1938, its expansion was greatly aided by the lag of 18 months between the accrual and actual payment of the taxes on the partnership earnings. In terms of *tax payments* the increased wartime tax rates had a delayed impact on Mr. Clarkson. In effect, much of Mr. Clarkson's expansion was financed by funds "borrowed" from the government in the form of unpaid tax accruals. Since Mr. Clarkson did not attempt to set aside cash reserves for his tax liabilities as they accrued, the funds so "borrowed" eased his immediate financial position and enabled him to proceed more rapidly with his expansion.

2. Indeed, the long lag between the accrual and actual payment of the taxes on the partnership earnings was vital to the expansion of the company. If, for example, the current payment principle had been introduced five years earlier, Mr. Clarkson's expansion would almost certainly have been greatly

retarded — even though this change would have affected only the *timing* of a fixed amount of tax payments. As has been shown, Mr. Clarkson made his critical decisions to expand at a time when his financial position was already precariously extended.

An earlier application of the current payment principle — or, for that matter, a more rapid increase in tax rates — probably would have made the successful completion of these expansions impossible. If plans for any one of the products — say, the decision to undertake cooperage production or the propeller contract — had been abandoned or delayed, subsequent profits would have been curtailed and the opportunities for future expansion thereby reduced. The cumulative effect of one such decision early in the company's history might have retarded its later growth out of all proportion to the increased dollar amount of its tax payments.

3. The company was organized as a partnership late in 1938, largely in an effort to minimize tax liabilities connected with operation in corporate form. In fact, however, it is doubtful that significant tax savings have been achieved thereby; the highly progressive individual surtax rates largely neutralize the benefit of avoiding the corporate excess profits tax for partnerships with large earnings and only two partners. Moreover, from 1939 through 1943 the income of partnerships reporting on a fiscal year basis was thrown into a later, higher tax year for tax purposes; whereas the income of fiscal-year corporations was thrown into an earlier, lower rate year. Thus, the principal tax benefit which Mr. Clarkson has derived from the partnership form of organization was in the delay in his tax payments rather than in a reduction in their amount.

4. Nevertheless, under many circumstances high taxes on corporate incomes do create an incentive for a small, closely held business to operate as a partnership rather than as a corporation. This shift, if made, may have important effects on the expansion of a business. For instance, the owners of a partnership will ordinarily be more hesitant to undertake risky expansions, since by so doing they place their personal assets as well as their interest in the business in jeopardy. A partnership will also have more trouble raising outside capital. Whether

Mr. Clarkson will wish to undertake postwar expansions with the aid of outside capital will depend partly on the relative rates of taxation on corporate and personal incomes.

5. Various inconsistencies and discriminations in the tax law are illustrated by Mr. Clarkson's experience. Mr. Clarkson presumably made a legally valid gift in November, 1938, when he gave 49% of his stock to his wife. He filed a gift tax return in connection with this gift and would have had to pay a tax on it if the amount of the gift had been large enough. But the Tax Court has decided that even though a 49% interest in the partnership was owned by Mrs. Clarkson, the entire earnings of the partnership are taxable to Mr. Clarkson. Indeed, unless the decision of the Tax Court is reversed, Mr. Clarkson's tax liabilities on the partnership earnings will exceed his income. In this event, Mr. Clarkson is faced with the problem of how to pay his taxes. Suppose his wife pays them for him. Has she then made a taxable gift to him by paying his obligations for him? Under the existing law it is quite possible that she may be considered liable for a gift tax under these circumstances. In this connection it is interesting to note that if Mr. Clarkson lived in a state with a community property law, the income from the partnership would be automatically divided equally between Mr. Clarkson and his wife for tax purposes. Clearly, these conflicting practices call for remedial legislation of some sort. But the highly complex issues which would be involved in straightening out this tangle lie outside the scope of this report.

CHAPTER XI

Continental Machines, Inc.

CONTINENTAL MACHINES is an example of a family-owned and controlled enterprise that has grown rapidly with almost no reliance on outside capital. No stock has ever been owned by outsiders. Similarly, borrowed funds, even in the form of short-term bank loans, have never amounted to a substantial sum. The retained earnings of Continental Machines, plus the salaries paid to its owners, not only have financed the entire growth of the company, but in addition they have supplied the capital for other companies manufacturing related products.

The exclusive reliance of Continental Machines on retained earnings for its equity capital has been no chance event. Rather, it represents one phase of a deliberate and carefully designed management policy designed (1) *to give the owner-managers of the company maximum freedom of action in conducting every phase of their business and* (2) *to create the strongest possible incentive for the exercise of personal initiative on the part of all employees.*

The techniques with which the management has implemented this policy will be described in some detail in order to illustrate the extent to which the basic policy of the management has dominated business decisions in all phases of the company's activities. The effect of taxes on Continental Machines can be understood only with reference to this pervasive management policy.

EARLY DEVELOPMENT OF CONTINENTAL MACHINES

Continental Machines is an outgrowth of a small family proprietorship, known as the Wilkie Machine Works and located at Winona, Minnesota. This proprietorship, organized around 1922, was operated by J. C. Wilkie, assisted by his four sons. The firm was engaged primarily in the manufacture of specialty tools used in reconditioning automobiles. Other tools, dies, gigs, and fixtures were also manufactured.

In 1928 the firm was moved to Minneapolis and was organized as a corporation under the name of Continental Machine Specialties, Inc., later abbreviated to Continental Machines, Inc. Shortly thereafter J. C. Wilkie died, and the management of the company reverted to his four sons.

Leighton Wilkie, the eldest of the four brothers, has been principally responsible for the company's progress since his father's death. Indeed, much of the following discussion is biographical; the company's policies are, in effect, an embodiment of Leighton Wilkie's imagination and economic philosophy.

Around 1928 Leighton Wilkie invented a method of making at a substantial saving light dies useful for short-run metal stampings. His process was patented. During the period 1930-1935 licenses to about 500 manufacturers yielded gross receipts of about $250,000. Mr. Wilkie's net return, after the deduction of his expenses, amounted to around $100,000. The profits on this patent were in part invested in Continental Machines and used in the development of an early model of the Doall Contour Machine.

This machine, a metal-cutting band saw, has been the basis of the company's expansion since 1935. It is useful for general tool room work and is particularly adapted to making inside cuts from sheets of metal when the perimeter must be left in a solid, uncut piece.

Before the introduction of the Doall machine the old method of inside cutting required that a number of holes be drilled along the line to be cut. The spaces between these holes then had to be chiseled out and the edge filed down to a smooth line.

In contrast, an inside cut can be made in much less time with a high-speed, metal-cutting band saw. The saw is inserted through a hole drilled in the metal to be cut and then joined by an electric belt-welding process to form a single, continuous strip. The saw then cuts rapidly through the work, removing the inside section in a single piece and leaving a clean edge which requires a minimum of additional machining.

EXHIBIT 47. SALES OF BASIC MODELS OF DOALL CONTOUR MACHINES, MAY, 1935, TO APRIL, 1944

Model	*Years Sold*	*Base Selling Price*	*Total Units Sold*
ABW	1935–1936	$ 495	68
A	1936–1937	375	12
AB	1936	495	23
J	1935–1939	790	568
JD	1936–1939	890	188
JXD	1936–1938	1,350	44
M	1937–1940	1,250	143
MD	1937–1939	1,650	98
V–16	1938–1944	865	1,593
ML	1938–1944	1,250	5,533
V–36	1939–1944	1,850	2,938
V–26	1939–1944	2,010	1,155
V–60	1941–1944	4,750	51

SOURCE: Company records.

The first Doall saw was produced in late 1935. It was a crude machine constructed from purchased parts including a wood band saw frame adapted to cut metal. As Exhibit 47 shows, only a few of these early models were sold.

The machine was completely redesigned from 1935 through 1939. To cite a few of the improvements, the butt-welding process was developed during this period. The original cast-iron frame was replaced by an all-steel welded frame. A variable speed pulley was developed which delivered every speed between two set ranges. The pulley permitted adaptation of the cutting speed to the materials being cut, making possible faster cutting and a longer use of the cutting tools. As auxiliary equipment to the Contour Saw, a continuous band file was developed. The file performs the smoother finishing operations after the work is first machined by the saw. Various other accessories and attachments were added during this period; enlarged and improved models were also produced.

The sales volume of Continental Machines increased rapidly after the introduction of the Doall machine. As shown in Exhibit 48, sales rose rapidly from about $115,000 in 1935 to $275,000 and $675,000, respectively, in 1936 and 1937. Under

EXHIBIT 48. FINANCIAL DATA OF CONTINENTAL MACHINES, INC., 1931-1944

Year	*Sales*	*Net Income before Taxes*	*Federal Income and Excess Profits Taxes*	*Net Income after Taxes*	*Dividends*	*Retained Earnings*	*Net Worth*
Calendar Year							
1931	$ 30,855	$ (587)	0	$ (587)	0	$ (587)	$21,599§
1932	26,222	(761)	0	(761)	0	(761)	21,011§
1933	63,065	(222)	0	(222)	0	(222)	20,250§
1934	97,390	309	$ 43	266	0	266	20,028§
1935	114,094	1	0	1	0	1	20,294§
1936	278,572	16,173	1,783	14,390	$ 7,500	6,890	20,293§
Fiscal Year ending August 31							
1937*	432,986	13,366	2,500	10,866	0	10,866	27,183§
1938	565,494	11,327	3,184	8,143	5,000	3,143	122,351‖
1939	888,848	85,132	17,837	67,295	0	67,295	104,749¶
1940	1,959,020	305,389	72,893	232,496	25,000	207,496	159,118**
1941	3,681,632	792,313	422,855	369,458	50,000	319,458	299,997††
1942†	6 743·572	1,754,882	1,186,123	568,759	0	568,759	601,498
1943‡	7,154,905	1,202,552	880,629	321,923	0	321,923	1,170,257

*Fiscal year ending August 31, 1937, covers only 8 months.

†Data for 1942 and 1943 do not allow for refunds that may eventually be made as a result of renegotiation proceedings.

‡Excludes dividend of $7,500 in form of long-term note to stockholders.

§Excludes amounts due to stockholders; these amounts not now available.

‖Includes $90,745 due to stockholders.

¶Includes $77,500 due to stockholders.

**Includes $69,574 due to stockholders.

††Includes $17,957 due to stockholders.

SOURCE: Company records.

the pressure of war demand the sales volume continued to expand in subsequent years until it reached a maximum of over $7 million in the year ending August 31, 1943.

BASIC MANAGEMENT POLICIES

Financial Control

As previously indicated, a prime consideration on the part of the owner-managers of Continental Machines is maintenance of their freedom of action. Leighton Wilkie and his relatives have run no risk of compromising their freedom by losing financial control of the company. They have carefully maintained in the family a 100% ownership of the equity capital of the company.

Indeed, emphasis on financial freedom of action has been carried even farther than this. The management has refrained from incurring indebtedness that might in any way restrict its freedom. No long-term debt has ever been held by anyone other than the company's stockholders. Even bank loans have been resorted to very sparingly. During the rapid wartime expansion, for instance, the maximum amount of bank loans outstanding has been $50,000 — an amount which could have been paid off at any time without unduly straining the company's working capital position. In other words, almost all the capital requirements of the company have been financed by the personal contributions of the Wilkie family and from retained earnings.

The basic principle of incurring no important financial obligations has had other important implications for management policies. Dividends have necessarily been small. Indeed, the total dividends paid by the company since its organization have amounted to considerably less than 10% of its cumulative retained earnings.

The company has also had to invest very sparingly in fixed assets. All plant facilities have been rented with one exception — a plant built by the company as part of a wartime experiment in the production of alloy metals. Typically, old buildings available at a low rental have been remodeled to suit the need of Continental Machines. Similarly, during the early years when the shortage of working capital was most acute, almost all the company's machinery was purchased second-hand and then rebuilt and renovated in its shops. By these economies an adequate production unit was assembled at very low cost.

Corporate Organization

Mr. Wilkie is of the opinion that a business organization of 500 or less individuals can be kept fluid and manageable, but that expansion beyond this size tends to produce much greater institutional rigidity and thereby to limit freedom of action on the part of the management. Consequently, as the business of Continental Machines has expanded, the manufacturing operations originally conducted by Continental Machines have been broken down into four separate corporations. The products of these corporations are, however, marketed according to a coordinated sales program. Through this arrangement the advantages of a decentralized business administration and of a centralized sales program are combined.

The manufacture of the band saws, as distinct from the Doall machine, was delegated to Contour Saws, Inc., and the manufacture of file bands to File Bands, Inc. A separate research and service organization was also formed under the name of the Doall Service Company. These three organizations were located in Des Plaines, Illinois, a suburb of Chicago. In addition, another company was established in Minnesota for the manufacture of precision gage blocks.

Each of these companies is legally independent of the other; that is, that none owns stock in any of the others. Each has its own officers and administrative organization. The Wilkies have retained 100% ownership in Continental Machines and Contour Saws, but key officials in the other three companies have been given a minority ownership interest in their companies. Mr. Wilkie hopes by delegating management responsibilities and some ownership interest to increase the personal initiative shown by the key men in each of these organizations without sacrificing to an important degree his own freedom of action.

The arrangement also has other incidental advantages to Mr. Wilkie and his brothers. In order to retain the dominant ownership in these companies they have had to concentrate a large percentage of their personal assets in the stock of these companies. By forming several companies, rather than just one, they have been able to diversify somewhat the risks inherent in such an unbalanced investment policy. Moreover, so long as the excess profits tax is in effect, some tax reduction is also achieved by the formation of several independent corporations. Relative to the size of the total tax burden, however, this tax saving is not of major importance.

Labor Policy

The same basic management objectives are reflected in the labor program of Mr. Wilkie. One of the principal reasons for moving part of the manufacturing facilities to Des Plaines was to avoid the rigidity of an organized labor force. Mr. Wilkie has attempted to create sufficiently favorable working conditions for his employees so that he will not be forced to deal with organized labor. The Des Plaines plants, for instance, are located in an attractive suburban area where the workers can live within walking distance of the plant and still have pleasant housing accommodations. In addition to a high wage scale, vacations with pay, and Christmas bonuses, Mr. Wilkie has introduced a number of other employee benefits. For instance, during morning and afternoon rest periods free milk and orange juice are distributed. In the winter months vitamin tablets are also available. Group insurance and during the war a savings program are maintained in which worker contributions are supplemented by the company.

The cost of these programs amounts to about 10 cents per employee hour. Mr. Wilkie believes that they represent a good investment in terms of labor productivity and goodwill. He says that his business has enough leeway to be able to afford them and that, if the situation changes so that he cannot afford them in this business, he intends to start a different business in which he can afford them.

Sales Policy

The same striving for independence is evident in the company's sales policies. Here, the principal policy of the company is to sell directly to customers and not through intermediate agencies. Mr. Wilkie reports that he decided on this policy when as a youth he observed the success of a local company in Winona, Minnesota. Mr. Wilkie peddled the garage tools manufactured by the partnership in the 1920's directly to garages using them. Later the machine tool products — first the dies and then the Doall machines — were sold directly to customers. The Doall machine was installed on a trailer, wheeled directly into the shops of prospective customers, plugged into their electric outlets, and demonstrated.

As the company expanded, its formal sales organization was set up with the same purpose in mind. Centralized sales and promotional activities are undertaken to increase customer goodwill and spread the Doall trade name. For instance, demonstrations of Doall products are made whenever possible to customers and to the public. An elaborate training program is conducted; as part of this program free training is given to the employees of customers. If customers submit materials for testing, free advice is also given concerning the most efficient cutting speed and setup for the Doall machine.

Sales are made through 37 sales corporations, each of which has exclusive sales rights in its geographical area. Seventy-five per cent of the stock of each of these corporations is owned by the Wilkie brothers and 25% is owned by the individuals in charge of each sales territory. Since the sales corporations handle primarily Doall products, aggressive merchandising of these products is assured. Added incentive is given to the local sales representative by his ownership interest in the sales corporation. These incentives are, however, provided without significantly limiting the management's freedom of action.

In addition to the domestic sales program Continental Machines has actively promoted foreign sales. As indicated in Exhibit 49, these sales rose steadily from 1936 through 1940. Since 1940 foreign sales have been retarded by wartime restrictions.

EXHIBIT 49. FOREIGN SALES OF CONTINENTAL MACHINES, 1936-1942

Year	*Number of Foreign Countries in Which Sales Made*	*Dollar Volume of Foreign Sales*
1936	2	$ 2,628
1937	8	97,423
1938	14	148,843
1939	18	140,263
1940	22	658,877
1941	19	560,658
1942	15	581,740

SOURCE: Company records.

EFFECT OF FEDERAL TAXES ON EXPANSION OF CONTINENTAL MACHINES

So much for a brief description of the expansion of Continental Machines and the basic policies of its management. With this background, what can be said about the effect of Federal taxes on the growth of the company?

1. The outstanding fact about the experience of Continental Machines is the very rapid expansion which it has been able to make *in spite of very high tax rates.* A number of circumstances have combined to make this expansion possible.

a. The Doall machine was introduced at a time when business conditions were improving and the demand for machine tools, in particular, was large. This factor undoubtedly contributed to the rapid expansion of Continental Machines. It is far easier for a small firm to obtain a share of an expanding market than for it to replace an established competitor in a contracting market.

b. Continental Machines has been able to market the Doall machine at a high profit margin. The company has relied on the quality of its product rather than on a low price policy to expand its sales. Consequently, its net income before taxes has been large, leaving a substantial net income after taxes even when tax rates were high.

c. The management has consistently followed policies designed to keep its investment in fixed assets at a minimum. It has therefore been able to finance a much larger sales volume with a relatively small capital outlay than would otherwise have been possible.

d. From 1939 until 1942 the company benefited from a chance quirk in the tax law. In 1938, for reasons entirely unrelated to taxes, Continental Machines shifted from an accounting period ending on December 31 to one ending on August 31. Until 1942 tax rates in effect in a given year applied to all taxable years beginning in that year. Thus, for the fiscal year beginning on September 1, 1939, Continental Machines was taxed at 1939 rates — even though eight months of this taxable year actually fell in 1940. The delayed impact of wartime tax rates on Continental Machines, combined with the heavy demand for machine tools in the early years of the war emergency, greatly facilitated the expansion of Continental Machines.

2. High taxes have had little effect on the effort and energy which Mr. Wilkie has devoted to the management of Continental Machines and his other companies. Mr. Wilkie has an intense emotional interest in his business activities much more deeply seated than the level of its dollar profits or his personal financial security. His primary interest is in the satisfaction of creating something new and in the power that goes with a successful business development. He also recognizes that in creating companies which now employ around 1,000 people, he has assumed responsibilities which he cannot freely disregard. Figuratively, he likens himself to the locomotive of a train and acknowledges his responsibility to keep the train running. Indeed, Mr. Wilkie flatly states that he would continue to devote the same degree of care and effort to his business regardless of the level of tax rates.

3. In another way, however, high taxes — especially high corporate taxes — greatly retard the expansion of companies which follow policies similar to those of the owners of Continental Machines. Mr. Wilkie and his relatives have consistently plowed most of the profits of Continental Machines back into the business. They have even contributed a considerable part of their personal incomes to other business ventures. If past experience is any guide, they will probably continue to do so in future years. Continental Machines is, indeed, contemplating

a number of new developments after the war in an effort to maintain its sales volume in the face of the almost inevitable drop in the demand for machine tools. But, expansion minded as are the Wilkies, they undertake as a matter of basic management policy only expansions which can be financed with their own funds. Hence, to the extent that high taxes absorb these funds they rigidly limit the potential expansion of the Wilkie enterprises.

CHAPTER XII

Lithomat Corporation

THIS chapter presents in more detail the formation and growth of the Lithomat Corporation[1] than does Part I, which dealt mainly with the tax implications of the company's history. Almost everyone will agree that aggressive entrepreneurship is essential to the maintenance of a high level of industrial employment after the war. In this respect, the story of Lithomat is important, entirely aside from its tax implications, because of the insight which it gives into the problems confronted in practice by promotions starting from the inception of a good idea with no special advantages other than a determination to succeed.

PRODUCTS AND PROCESSES OF LITHOMAT CORPORATION

The Lithomat Corporation was formed to produce lithographic plates made of paper and the chemicals and supplies used in conjunction with these plates. These plates, or mats, are intended for use in business offices for duplicating work and in the lithographic printing industry.

Lithographic reproductions are made from a plane surface. The process involves the use of plates with an equal affinity for water or greasy materials. An image is placed on such a plate by a lithographic crayon, typewriter, or other standard means. Successive reproductions are obtained by attaching a plate on which an image has been placed to the cylinder of an offset duplicating machine or press. With each revolution, first water and then ink are applied to the surface of the plates from a dampening system provided for the purpose. The unmarked surface absorbs moisture from the water roll and then rejects ink; the image, being greasy, repels water but picks up a supply of ink from the ink rolls. The inked image is then transferred to a rubber blanket with each revolution of the cylinder and from the blanket is printed on paper.

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[1] For convenience of expression, the entire project, dating back to about 1934, is referred to as the development of the Lithomat Corporation. This reference is not strictly accurate, since the present Lithomat Corporation was not organized until September, 1940, and, in a legal sense, is not a continuation of any pre-existing business corporation. In terms of the personalities involved and the technical development, however, the project can be viewed as a unit.

A chemically treated paper plate suitable for lithographic printing must meet rigid requirements. The plate must be strong and substantially impervious to water. Its surface must be hard enough to withstand the pressure of type and printing rolls, and yet not hard enough to injure the keys and adjustments of an ordinary typewriter. The grain must approximate the evenness and texture of fine lithographic stone, but at the same time be flexible enough to bend without cracking. Images must be clear cut, even, and without imperfection in any printing surfaces, and the mat must reproduce as well at the end of a run as it does at the beginning.

The Lithomat Corporation has developed several such paper plates as well as the chemicals and supplies used in connection with these plates. They are made of a strong fiber base impregnated with synthetic plastics and resins on which colloidal film layers are deposited. These layers give the plates their lithographic properties.[1]

ORIGINATION OF IDEA AND EARLY DEVELOPMENT: 1934-1939

Origination of Idea

Around 1934 J. E. Gilligan conceived the idea which subsequently culminated in the Lithomat Corporation. Prior to 1934 Mr. Gilligan had worked for some years in the office duplication business and had seen large profits made by companies introducing successful innovations into the industry.

Mr. Gilligan was impressed by the profit potentialities of a lithographic plate made with paper which could be used with facility for office duplication work. The conventional metal plates, although superior in quality to customary stencil or hectograph methods of duplication, were impractical for ordinary office use.

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[1] The plates are sold under the trade names of *Photomat*, *Lithomat*, *Documat*, and *Unimat*. The Photomat is used to reproduce photographic images. It will reproduce about 20,000 impressions. Lithomat, Unimat, and Documat are "direct-image" plates. Direct images are images applied directly to the plate by typing, drawing, or other mechanical methods. Lithomat will reproduce up to 20,000 impressions, Unimat up to 2,500 and Documat up to 400.

Mr. Gilligan undertook the development of such a plate. After some experimentation, he realized the need for additional technical assistance and interested J. V. R. Shepherd, an engineer, in the idea. Mr. Shepherd, in turn, enlisted the assistance of H. R. Gillette, who was believed to be in a position to furnish paper suitable for making paper plates. Work on the project was continued on this basis, but progress was difficult because of the small amount of capital available to finance research. By 1935, however, a crude plate was developed which successfully reproduced an image.

Financial Assistance from a Large Office-Equipment Manufacturer

Inasmuch as additional capital was needed to finance further development work, assistance was sought from a large manufacturer of office equipment. After several months of negotiation an agreement was reached under which the large manufacturer advanced $12,000 to finance further developmental work on the plates. In return it was given an option to exclusive rights of distribution, provided that it would finance the actual manufacture of the plates. In 1936 a demonstration was made for this company on the basis of which it decided not to proceed further with its financing.

Continued Research by Mr. Gilligan

Shortly thereafter Mr. Shepherd ceased to participate actively in the project. The $12,000 had been spent, differences had arisen among the interested parties, various liabilities had been incurred, and no money was available to pay these liabilities or to finance further research. The whole proposition was left to Mr. Gilligan. He located a paper company interested in Lithomat as a possible customer which agreed to make trial plates, and he succeeded in arranging facilities for testing purposes.

Mr. Gilligan managed to continue his experimentation on this basis until the spring of 1939. By this time the acquisition of additional capital had become imperative. The liabilities that had been incurred had to be settled, and time had begun to run against various patent applications that had been acquired. But the developmental work seemed sufficiently promising to justify an attempt to straighten out the situation and to make possible the acquisition of new capital.

The development had been organized as a Patent Trust in 1937. Mr. Gilligan was appointed trustee, and the beneficial interest in the Trust was divided equally among Gilligan, Shepherd, and Gillette. The balance sheet of the Trust in the spring of 1939 was as follows:

Assets		*Liabilities*	
Patents	$22,500	Creditors' claims	$ 7,286
		Payable for development	214
		Moral obligations	3,000
		Beneficial interest (equally divided among Gilligan, Shepherd, and Gillette)	12,000
	$22,500		$22,500

No value is included in this statement for the personal services of the beneficiaries. Mr. Gilligan had spent the better part of about five years working without compensation on the project. During this period he turned down various offers to sell the development to established companies. Clearly, only the belief that large profits lay ahead could have persuaded Mr. Gilligan to risk so much in the development.

INTERMEDIATE DEVELOPMENT: 1939-1941

In 1939 semi-outside capital, for the first time, acquired an ownership interest in the development. This capital was raised from and through F. H. Nesmith, who had served the project as attorney for several years prior to 1939. Indeed, the Nesmith group was the sole source of financial support for the project during the two-year period ending May 31, 1941. Another landmark of this period was the consolidation of the entire development into a single business corporation with the formation of the Lithomat Corporation in September, 1940.

Financing through F. H. Nesmith

In 1939 Mr. Nesmith and his group purchased certain claims against the Patent Trust and also bought out Mr. Shepherd's interest in the Trust. In return they received 46% of the beneficial interest in the Trust; Mr. Gilligan at that time had a 31% interest and Mr. Gillette a 23% interest.[1]

Mr. Nesmith first invested a small sum in the project, in addition to legal services, and he intended to limit his investment to this amount. In order to keep the project alive, however, more and more capital was needed, and by June 1, 1941, Mr. Nesmith had substantially increased his investment in the development. His policy was to invest savings from his personal income in the project and only to a lesser degree to risk his permanent capital in it.

Mr. Nesmith also raised additional capital from a half-dozen friends who made contributions ranging from $1,000 to $5,000 each. Two of these contributors were quite wealthy; the others had moderate incomes. By June 1, 1941, the total contribution of the Nesmith group, including Mr. Nesmith's legal services, amounted to approximately $30,500.

Organization of Lithomat Corporation in 1940

In September, 1940, the Lithomat Corporation was formed to gather all the various developments together into a single business corporation. In addition to the activities previously discussed and others which have been omitted to simplify the exposition, the formation of the Lithomat Corporation brought W. A. Kingman, a consulting chemist, into the project. Mr. Kingman had developed by independent research new plates and processes believed to be patentable, to be outside the scope

[1] The beneficial interest was divided into four lots of 23% each, of which the Nesmith group received one on account of its claims against the Trust and purchased another from Mr. Shepherd for $1,510. At the same time the Nesmith group waived claims against the Trust amounting to $1,500, thus in effect purchasing a 23% interest for the same price as paid to Mr. Shepherd. Messrs. Gilligan and Gillette each had a block af 23%, and Mr. Gilligan was given an extra 8% in recognition of his services as Trustee.

of the original patents, and to be of considerable potential value. An agreement was negotiated to acquire the discoveries and inventions of Mr. Kingman for $900 in cash and 6% of the common stock of the newly formed Lithomat Corporation. The new corporation also acquired the interests of Mr. Gilligan and the Nesmith group. Mr. Gillette retained his interest in the Patent Trust but did not participate in the Lithomat Corporation.

Ownership of Lithomat Corporation as of June 1, 1941

As of June 1, 1941, the company had outstanding 6,500 shares of preferred stock, issued at $5 a share, and 3,000 shares of common stock. In return for their investment, the Nesmith group received 5,900 shares of preferred stock, slightly over 90% of the outstanding shares, and 1,710 shares, or 57% of the common stock. Mr. Gilligan owned the remaining 600 shares of preferred stock and 1,110 shares, or 37%, of the common stock.[1] The remaining 180 shares, or 6%, of the common stock were owned by Mr. Kingman.

Financial Position as of June 30, 1941

In June, 1941, an additional $5,000 was paid in by a well-known Boston attorney, an outsider, for 1,000 shares of preferred stock. The attorney, whose office was near Mr. Nesmith's, by chance heard a conversation between Mr. Nesmith and Mr. Gilligan about Lithomat; upon investigation he became sufficiently interested in the project to invest in it.

Nevertheless, despite this additional $5,000 the company was again in a tight financial position by June 30, 1941. Its balance sheet as of this date, shown in Exhibit 50, gives a clear picture of the company's financial resources just before the commencement of commercial sales. The company had net current

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[1] The preferred stock had the following rights: (1) a cumulative dividend of 30 cents per share; (2) after the payment of regular dividends, a 40% participation for preferred stockholders, *as a class*, in all additional dividends; (3) privilege of conversion into common stock on the basis of 5 shares of preferred stock to one share of common stock; (4) $5.50 a share plus accumulated dividends in liquidation; and (5) concurrent voting power share for share, (a) if cumulative dividends are defaulted for 12 months, or (b) on any action to increase the capital stock, preferred or common, or any sale of assets or reorganization involving such a sale. Thus, the preferred stock shared many of the prerogatives ordinarily reserved for common stock.

Exhibit 50. Balance Sheet of Lithomat Corporation as of June 30, 1941

Assets	
Current Assets	
Cash	$ 5,003
Accounts receivable	2,942
Inventories	345
Total current assets	$ 8,290
Patent rights	40,429
Fixed assets	970
Notes receivable from officer	3,045
Deferred charges	332
Total Assets	$53,066
Liabilities	
Current Liabilities	
Accounts payable	$ 1,044
Accrued taxes	666
Accrued expenses	222
Total current liabilities	$ 1,932
Capital stock — preferred	32,500
Capital stock — common	3,000
Capital surplus	15,634
Total Liabilities	$53,066

Source: Data filed with the Department of Public Utilities of the Commonwealth of Massachusetts.

assets of only $6,358. Obviously, with such meager resources additional capital was needed to finance commercial operations and to continue developmental work.

Period of Unprofitable Operations

Operating Difficulties and Resulting Deficits

The operating phase of the project began in July, 1941, when the first commercial sales were made in small volume. Since Lithomat did not have the capital resources necessary to finance its own manufacturing facilities, it established a policy of contracting with large paper converters for the manufacture of its products. At this time the Lithomat plates, then the company's sole product, were still in an imperfect state of development. Nevertheless, within less than a year accounts had been established with an imposing list of nationally known corporations.

By the end of the year most of the production difficulties had been overcome, and, except for minor details, the product was standardized to the satisfaction of customers.

About this time, however, government restrictions and limitations were placed on raw materials basic to Lithomat's products. Consequently, the company was forced to search for substitute materials in order to continue its production. This search involved much costly experimentation. The inconsistency in the product resulting from this experimentation was extremely expensive from both a manufacturing and a merchandising standpoint. Fortunately, in March, 1941, the company had acquired the services of W. G. Mullen, a chemist with long experience in this field. By the end of 1942 he succeeded in stabilizing the product, and sales began to rise markedly during 1943.

Until July, 1942, the company's research and developmental work was carried on in a few small rooms in a Boston loft building. As the project expanded and additional personnel was hired, new accommodations became essential. Consequently, in July, 1942, the company moved to its present location in Cambridge. The cost of moving and of adapting the new quarters to the company's needs added greatly to its financial difficulties. Finally, research and developmental outlays and the establishment of a national distributing organization were costly.

As a result of these abnormally high expenses, operations during both 1942 and 1943 were unprofitable. Inadequate accounting reports preclude a precise estimate, but the deficit for the two years apparently amounted to about $35,000.

Efforts to Acquire New Capital

Obviously, the drain on working capital occasioned by deficits of $35,000 and continued expenditures on research, development, and new fixed assets soon absorbed the $6,000 of net working capital available in July, 1941. During the period from July, 1941, to April, 1942, the company was in desperate need of additional capital. Several possible sources were investigated.

Application for RFC Loan. An application was made for a loan from the Boston office of the Reconstruction Finance Corporation. After the usual negotiations a proposition involving a loan authorization of $50,000 was received. One of the requirements of this proposition was that the company raise at least $15,000 of additional capital. In the process of raising this amount, however, arrangements were made to acquire the entire $50,000 from another source, thus making the RFC loan unnecessary.

Other Outside Contacts. Contacts were made with other groups during this period. Several contacts never reached the stage of definite offers. An offer actually was received from one group, but the terms were less favorable than the arrangement later worked out with Venture Research Company of Boston.

Venture Research Company. Venture Research Company was organized for the express purpose of locating and investigating promising new developments for its clients — primarily individuals with substantial means interested in investing in venture enterprises.

Lithomat and Venture Research discussed the problem of additional financing in April, 1942, but Venture Research was at the moment too busy with another proposition to supply Lithomat with its immediate capital needs. Venture Research did, however, refer Lithomat to interested individuals who subscribed a total of $25,000 between April and June, 1942, for 5,000 shares of preferred stock.

The first of these individuals was W. W. Garth, Jr., now President and Treasurer of Lithomat. In the spring of 1942 a representative of Venture Research was trying to persuade Mr. Garth to become a client of Venture Research. The companies in which Venture Research was then interested were cited to Mr. Garth, but he was not attracted by these investment opportunities. By chance, the Venture Research representative also mentioned Lithomat as a company which he believed promising but had decided not to support because of other commitments. Mr. Garth, after investigating Lithomat, purchased 1,000 shares of preferred stock at $5 a share.

About the same time F. M. Roberts, then active in Venture Research, purchased for his personal account 800 shares of preferred stock for $4,000. Both Mr. Garth and Mr. Roberts were appointed directors of Lithomat in the spring of 1942. The remaining $16,000 was contributed by other individuals.

The willingness of Mr. Garth and Mr. Roberts to invest in Lithomat stimulated the interest of Venture Research in the company. An agreement was drawn up in which Venture Research underwrote the sale to its clients of 5,000 shares of preferred stock at $5 a share. In connection with this financing Venture Research had an independent investigation made of Lithomat. The favorable report of this investigation was circulated among the clients of Venture Research along with subscription privileges to the preferred stock of Lithomat.

In spite of this favorable recommendation to individuals expressly interested in financing new developments, Venture Research was able to raise only a few thousand dollars from its clients. In order to fulfill the agreement of Venture Research, Mr. Roberts personally purchased the unsubscribed balance of the offering.

Various explanations have been suggested to the authors for the failure of this offering, one of which is that the Venture Research clients were unwilling to subscribe because of the sharp drop in the stock market during the first half of 1942. This explanation is consistent with the findings of Exhibit 22 (page 92) which shows a precipitous decline in the value of the common stock of the Polaroid Corporation in late 1941 and early 1942. One of the obvious hazards in investing in a speculative enterprise such as Lithomat or Polaroid is that new capital may be required when market conditions are so unfavorable that it cannot be raised at all or can be raised only on very unfavorable terms.

In all, Lithomat raised about $56,000 during the period April-June, 1942, from the sale of 11,230 shares of preferred stock at $5 a share. In addition to the 10,000 shares already accounted for, 1,230 shares were sold in small lots to other individuals. Moreover in November, 1942, the company obtained a bank loan of $5,000, the first such loan which it had negotiated.

The funds raised in 1942 provided the company with adequate working capital for some months to come. By February, 1943, however, the need for new funds was again becoming acute. During February the directors authorized the management to factor its accounts receivable, if possible, and to borrow up to $50,000 from the RFC, but no funds were borrowed as a result of these authorizations.

During this period several possibilities for additional new developments important to the future of the company, such as an offset printing press, were considered by the directors but were turned down because funds were not available to finance them.

Reorganization of May, 1943

By April, 1943, Lithomat was again desperate for more funds. Net operating losses and increased demands for working capital had absorbed almost all the company's free funds. The company had virtually exhausted its bank credit. In a letter to stockholders dated April 7, 1943, the president reported that $25,000 was needed immediately. He expressed the opinion that if this amount could be raised, any additional amounts that might be needed could be obtained through bank loans.

In view of the urgency of the need for funds drastic measures were undertaken. First, the capital structure of the firm was overhauled to create a single class of stock and to increase the equity of the preferred stockholders. Secondly, the directors agreed to underwrite a substantial portion of a loan of $25,000 to be raised from the company's stockholders.

In the reorganization a single class of 36,000 shares of $1 par value common stock was created. The old common stock was exchanged on a basis of four shares of this stock for one share of the new stock. The old preferred stock was exchanged on a share-for-share basis for the new stock.[1]

The reorganization, in effect, turned the company over to the preferred stockholders, and practically eliminated Mr. Gilligan's equity in the company. Before the reorganization the common stockholders, as a class, were entitled to 60% of all dividends after the annual payment of 30 cents a share on the preferred stock. The reorganization reduced the participation of the old common stock to 4% of all dividends. Mr. Gilligan's ownership of nearly 40% of the common stock before the reorganization was reduced to about 1% of the new issue.[1] It should be pointed out, however, that the reorganization received the unanimous approval of the directors, including Mr. Gilligan.

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[1] Before the reorganization, 17,730 shares of preferred stock and 3,000 shares of common stock were outstanding. After the reorganization 18,480 shares of common stock were outstanding. Another 10,000 shares were reserved for the note conversion described below.

The second action of the directors at this time was their vote to raise $25,000 from the company's stockholders. To expedite the receipt of cash, certain directors arranged to underwrite a substantial portion of the loan and to advance funds to the company. The stockholders, however, were granted the right to subscribe to noninterest-bearing notes, maturing June 30, 1944, and convertible into common stock at the rate of two shares of stock for each $5 advanced.

At this time Lithomat had about 30 stockholders. It is highly significant to note that subscriptions of only $1,500 were received from all stockholders who were not directors, although these stockholders owned about 40% of the stock. The remaining $23,500 was raised from several of the directors and their relatives. In other words, when the company was on the verge of tremendously profitable operations, its stockholders were unwilling to subscribe for stock at $2.50 a share. Previous cash contributions had been paid in at about $5 a share.

In interpreting the difficulties encountered by Lithomat in raising capital, it is interesting to note that during the period from June, 1941, on, the record shows that the directors expected to attain a profitable level of operations at an early date. In filing their capital stock tax returns they gambled on these prospects by declaring large capital stock values. For instance, on October 20, 1941, the directors voted to declare a capital stock valuation of $500,000 in order to provide a tax-free earnings base of $50,000 for purposes of the declared value excess profits tax. On November 23, 1942, the declaration was $250,000. Yet during this period: (1) Lithomat was initially unable to obtain the backing of Venture Research; (2) after

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[1] As previously noted, Mr. Gilligan had originally received 600 shares of preferred stock in exchange for $3,000 loaned to him by the Nesmith group. Before the reorganization, however, he had turned his preferred stock back to the company in exchange for his note, which had previously been acquired by the company, in order to facilitate the sale of additional preferred stock.

Venture Research had finally agreed to subscribe for stock, it could not sell the stock to its clients — in spite of the admitted interest of these clients in making venturesome investments; and (3) within two months of the period when the company commenced a year of immensely profitable operations, additional subscriptions could not be obtained from stockholders at a price of approximately $2.50 a share.

Change in Management

The change in management which eventually resulted in Mr. Garth's assuming the presidency of the company began in September, 1942. Mr. Garth originally had purchased stock in the company purely as an investor. He was, however, appointed a director at the time of his first investment in Lithomat. Near the end of September Mr. Garth was elected president, and two months later he also became treasurer. After about a year of part-time supervision, he assumed full-time duties with the company.

In addition to Mr. Garth, the top management of the company now consists of Mr. Gilligan, who is Executive Vice President, and Mr. Mullen, the inventor of Photomat, who is Vice President in Charge of Research and Production.

PROFITABLE OPERATIONS: YEAR ENDING JUNE 30, 1944

A sudden turn in the company's fortunes occurred in fiscal year 1944. The war, which previously had retarded Lithomat's development, vastly accelerated it in this year. By 1943 Lithomat had successfully stabilized its products with the use of materials available during the war. Several governmental agencies adopted the company's products in mid-1943. Consequently, operations in fiscal year 1944 were exceedingly profitable.

The company describes its expansion as follows in its 1944 annual report.

> As would be expected, in these times, most of the growth arose directly from sales to governmental agencies. It should be pointed out that the acceptance of our products by these agencies was in direct competition with all other methods of

EXHIBIT 51. CURRENT POSITION OF LITHOMAT CORPORATION ON SEPTEMBER 30, 1943

Current Assets		
Cash		$ 4,036
Accounts receivable		294,108
Due from officers and employees		159
Inventories		35,529
		$333,832
Current Liabilities		
Notes payable, due June 30, 1944		
Officers, directors, and stockholders	19,250	
Others	5,750	
		$ 25,000
Bank notes payable		25,000
Accounts payable		90,682
Accrued items		16,908
		$157,590*

*No provision is included for Federal taxes. On the basis of the earnings of the first three months, this item would be about $120,000.

SOURCE: Data filed with the Department of Public Utilities of the Commonwealth of Massachusetts.

reproduction and, as such, gives a reasonable indication of the position the company should enjoy postwar.

During fiscal year 1944, the company's sales amounted to $1,600,000. Net income before Federal income and excess profits taxes was $708,000, and after taxes was $206,000. Net income before taxes came to nearly 45% of sales, and net income after taxes amounted to about 13% of sales.

Even in fiscal year 1944, however, the company continued to have acute financial problems. Its cash position was severely strained by its rapid expansion. Indeed, on September 30, 1943, as is shown in Exhibit 51, the company had only $4,000 of cash to meet well over $100,000 of urgent current liabilities. Large amounts of accounts receivable were on hand, but they could not be immediately collected. By November, 1943, the company had increased its bank borrowing to $50,000, thereby substantially exhausting this source of funds, and it still had outstanding over $100,000 of accounts payable, many of which were overdue. Its principal manufacturer refused to continue the production of plates unless these accounts were settled.

Exhibit 52. Balance Sheet of Lithomat Corporation as of June 30, 1944

Assets	
Current Assets	
Cash	$419,221
U.S. Government Securities*	300,500
Accrued interest receivable	875
Accounts receivable	83,778
Inventories	44,135
Total current assets	$847,509
Estimated postwar refund of excess profits tax	54,500
Fixed assets less reserves	22,453
Interest in patent trust, patent rights, etc.	1
Other assets	5,896
Total Assets	$930,359
Liabilities	
Current Liabilities	
Dividends payable	15,040
Accounts payable	27,081
Commissions payable	3,845
Accrued salaries	770
Provision for estimated commissions	72,000
Provision for estimated taxes*	578,236
Total current liabilities	$696,972
Employees' deposits for income and social security taxes	2,036
Capital	
Capital stock — common	
Issued and outstanding shares	30,080
Capital Surplus	25,674
Earned surplus since July 1, 1943	175,597
Total Liabilities	$930,359

*United States Treasury Tax Notes of $100,000 are here shown as a current asset rather than as an offset to the provision for estimated taxes. They are shown as an offset in the company's annual report.

Source: Annual Report for year ending June 30, 1944.

The company was able to obtain funds only by notifying one of its principal customers that it would have to cease production entirely unless it received an advance payment on its accounts receivable. Under this duress, about $200,000 was forthcoming during the early part of December and the financial crisis was weathered.

During the remainder of the fiscal year, the company's financial position rapidly improved. As Exhibit 52 shows, on June 30, 1944, the company had available current assets of

EXHIBIT 53. PERCENTAGE OWNERSHIP OF GILLIGAN IN LITHOMAT DEVELOPMENT AT VARIOUS DATES

Date	*Percentage Ownership of Gilligan*
1937 — Original formation of Patent Trust	33.3%
June 1, 1941 — Lithomat Corporation (financing limited to Nesmith group)	28.6*
June 30, 1942 — Lithomat Corporation after Venture Research financing	17.0*
May, 1943 — Lithomat Corporation immediately after reorganization of May, 1943	1.5
May, 1943 — Lithomat Corporation after $25,000 financing of May, 1943	1.0
June 30, 1944 — Lithomat Corporation after issue of stock in exchange for plans for offset press	6.2

*When both preferred stock and common stock were outstanding, five shares of preferred stock have been assumed to be equal to one share of common stock; the preferred stock was convertible into common stock at this ratio. This procedure gives a reasonable estimate of the ownership interest of the two classes of stock on the assumption that the company would be highly successful On any other assumption it overestimates the ownership interest of the common stock.

$848,000, including $720,000 of cash and government securities, with which to meet current liabilities of $697,000.

SHIFTS IN OWNERSHIP OF LITHOMAT DEVELOPMENT

An analysis of the shifts in the ownership of the Lithomat development from the inception of the idea to the stage of profitable operations furnishes a convenient means of tying the preceding discussion together and of drawing significant generalizations from it.

Relative Ownership of Idea and of Capital

By the time the project became profitable, about 99% of the ownership had passed into the hands of the individuals contributing capital; only 1% remained as compensation for the idea and developmental work contributed by Mr. Gilligan.

Mr. Gilligan conceived the fundamental idea on which the whole development was based, and he also worked on the development for about five years without receiving any remuneration for his services. Since he lacked capital, he was forced to surrender two-thirds of the ownership at the outset. Later, as Exhibit 53 shows, his ownership interest dropped steadily to

1%, as new capital was acquired and as the development was reorganized to take cognizance of losses incurred in the early years and to permit the acquisition of new capital. In 1944, however, Mr. Gilligan's ownership interest was restored to 6.2%. He sold plans for an offset printing press which he had developed to Lithomat for 1,600 shares of stock and $400 in cash.

It should be emphasized that the decline in Mr. Gilligan's percentage ownership does not reflect any lack of business acumen on his part. The process of development was necessarily long and complex and was made more so by wartime shortages. On several occasions the only alternatives were to acquire additional capital or to drop the development. Mr. Gilligan, convinced of the soundness of his idea, chose the former course.

This action inevitably involved a decline in his percentage ownership in the enterprise, though not necessarily in the dollar value of his stake in the undertaking. Indeed, Mr. Gilligan now has a 6% interest and a top management position in a company that may achieve an important position in its industry. In the long run his courageous gamble may pay off handsomely.

Relative Ownership of Capital Invested at Different Times

As so frequently happens, the development took much longer and required much more capital than was originally estimated. The early investors who did not contribute additional capital when it was needed suffered a heavy dilution or complete loss of their interest in the development.

The Nesmith group entered largely as preferred stockholders late enough in the development so that it was never in danger of completely losing its ownership interest. Indeed, as Exhibit 54 shows, the 1939-1941 contribution of the Nesmith group amounted to 24% of the total capital paid in to the development; in return they received the equivalent of 22% of the stock outstanding as of June 30, 1943. It is true that in June, 1941, the Nesmith group had held approximately a 70% ownership in the undertaking. But at that time it was the sole capital supplier with the exception of the office-equipment manufacturer.

EXHIBIT 54. PERCENTAGE OWNERSHIP IN LITHOMAT CORPORATION AS OF JUNE 30, 1943, ACQUIRED IN EXCHANGE FOR IDEA AND SERVICES AND CAPITAL CONTRIBUTIONS

	Capital Contributions		*Stock Ownership*		*Dollar Contribution*
	Dollar Amount	*Percentage Contributed*	*No. of Shares*	*Percentage Ownership*	*per Share of Stock*
Idea and services	...	...	323	1.1	...
Total capital contributions	$126,650	100.0	28,157	98.9	...
1935: Manufacturer of office equipment	$ 12,000	9.5	0	0.0	...
1939-1941: Nesmith group	$ 30,500	24.1	6,327	22.2	$4.82
1941-1942: Venture Research and others	$ 59,150	46.7	11,830	41.6	$5.00
1943: Subscription to Convertible Notes	$ 25,000	19.7	10,000	35.1	$2.50

NOTE: This exhibit shows the ultimate ownership interest received by the capital contributed at various times and not the present ownership of any group of stockholders.

The capital invested in May, 1943, clearly received the most favorable treatment of any thus far invested. Over 85% of this capital was contributed by preferred stockholders whose first investment in the company was made after June 1, 1941. As a condition for supplying additional funds in May, 1943, these stockholders insisted on a recapitalization to take account of past losses that substantially increased the equity of the preferred stock. Moreover, as Exhibit 54 shows, the new stock issued in May, 1943, was sold at $2.50 a share, whereas all previous contributions were made at about $5.00 a share.[1] In addition to the marked improvement in their position resulting from the recapitalization, the subscribers to the May, 1943, issue received 35% of the ownership interest in the company in exchange for less than 20% of the total capital contributed to the development.

It should be emphasized that this analysis of the shifts in the ownership of the Lithomat development does not contain any moral pronouncements on the transactions that have taken place. The capital entering at all phases of the development has taken heavy risks, and its owners naturally tried to obtain the best possible terms for themselves. Furthermore, no implication is intended that the Lithomat development is in any way abnormal or unique — except perhaps in its successful culmination. On the contrary, the immediate reaction of experienced investors with whom the authors have discussed the development is: "That's the way it always happens!"

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[1] Technically, noninterest-bearing notes were issued in May, 1943, but these notes were convertible into common stock about a year later.

POSTWAR ADJUSTMENT PROBLEMS

Transition Period Problems

Lithomat has already begun its period of postwar adjustment. Its government business was sharply cut back at the end of fiscal year 1944, partly as a result of advance buying during 1944. Sales during the first nine months of the fiscal year beginning July 1, 1944, were at an annual rate of about $500,000, about 30% as large as those of the preceding year. These sales, however, were predominately to private users and were much larger than such sales in preceding years. The company's management expects a substantial increase in sales both from government business and from commercial enterprises during the last quarter of fiscal year 1945.

Sales during the current fiscal year have been insufficient to support the increased level of overhead built up during 1944. Nevertheless, the management has maintained its current level of overhead expenditures, even at the danger of impairing its working capital position, in the belief that its present personnel and facilities will be needed to promote and administer its prospective sales volume. Furthermore, under the present tax law tax refunds from the carry-back provisions will make good the major portion of any drains on working capital resulting from possible deficits during the transition period.

Postwar Prospects of Lithomat

The purpose of this section is merely to indicate the possible trends in Lithomat's postwar business and the major problems that will confront the company. No attempt is made to predict the future of the company.

Lithomat has a potential market far in excess of its maximum sales thus far. The stencil and hectograph duplication market as well as that of commercial lithography runs to many millions of dollars annually. If Lithomat can obtain even a modest percentage of this market, it has a large field for expansion.

In order to achieve this goal, difficult problems of development, production, and distribution must be solved. In recent years, perhaps stimulated in part by competition from Lithomat, several companies have undertaken the development of plastic plates for use in lithographic printing. Competition in this area is certain to be keen. In order to establish a secure position in the industry, Lithomat must keep its developmental work abreast or ahead of its competitors.

Secondly, a smoothly working production setup must be established and maintained. To date, Lithomat has of necessity contracted for the production of its plates with various large paper mills; the company has not had an adequate supply of capital to do its own manufacturing. At times, however, production difficulties have threatened seriously to impair the expansion of the company. Prompt deliveries have frequently been difficult to obtain; yet such deliveries are essential to maintain customer goodwill. It may become advisable for Lithomat to construct its own manufacturing facilities.

Finally, if Lithomat is to become a leading firm in the industry, its distribution system must be enlarged and strengthened. In the office duplication field one of its most serious problems is that most of Lithomat's competitors manufacture duplicating machines, on which dealers' profits are large, as well as duplicating supplies. Hence, a firm manufacturing only supplies operates at a competitive disadvantage in securing dealer outlets, even though its supplies are equal to or even superior to those of its competitors.

Thus, Lithomat may attempt to acquire or develop duplicating equipment in order to facilitate the sale of its duplicating supplies. The company's interest in so doing is evidenced by the previously noted acquisition in 1944 of plans for an offset printing press.

All these problems must be solved in competition with established companies with vastly superior physical facilities for research, financial resources, and more highly developed distributive systems. Obviously, in spite of the success which

Lithomat has had to date, many problems still remain to be solved.

In one respect Lithomat has a definite advantage. So long as the company continues to contract with large paper mills for the production of its plates, a sizable volume of sales can be financed with a limited working capital. If, however, the company should decide to undertake a large-scale expansion, involving the acquisition of its own manufacturing facilities or the introduction of costly new products, its present financial resources would be severely strained. The net working capital of $150,000 available at the end of fiscal year 1944 is not large in relation to the magnitude of these problems. It may, however, be substantially augmented by tax refunds from Section 722 and the carry-back provisions of the tax law.

CHAPTER XIII

Lockheed Aircraft Corporation

PART I has summarized the relevant factual data from the experience of the Lockheed Aircraft Corporation and has presented a detailed analysis of the tax implications of these data. This chapter discusses a critical phase in the early history of Lockheed in more detail, primarily to buttress the very brief summary in Part I.

EARLY HISTORY OF LOCKHEED AIRCRAFT CORPORATION

In mid-1933 the Lockheed Aircraft Corporation was a small, independently owned firm with total assets of less than $200,000. New management had taken over the previous year, purchasing the assets of the predecessor firm from a Federal receiver for $40,000. The predecessor had developed several planes far ahead of their time in structural and performance characteristics. The Lockheed *Vega*, a high-wing, single-engine, cabin plane, was its best known product. Post and Gatty had made their famous world-encircling flight in a Vega. Other similar models, the *Orion* and the *Sirius*, had established enviable records. Lindbergh flew a Sirius in his tour of the Orient.

ALTERNATIVES CONFRONTING MANAGEMENT

The new management was confronted almost immediately with the necessity of making a crucial decision upon which the future of the enterprise depended. The alternatives were (1) the safer but unprogressive policy of continuing to produce single-engine, cabin planes, or (2) the more venturesome and risky policy of entering an entirely new field, namely, twin-engine all-metal transport planes.

The first alternative offered reasonably good prospects for continued operation over a number of years, perhaps indefinitely, as a profitable small firm. Eventually the company might have had to liquidate, but probably not until it had paid its way. If this decision had been made, the company would have continued to produce and to improve its existing style of single-engine plane, but it would not have embarked in the new field of twin-engine transports. Continued concentration on the existing style of plane obviously would have required smaller and less risky investment outlays than would the development of transport planes; the return on these outlays would also have been more predictable. Moreover, the amount risked in any one project would have been so small that the continued existence of the enterprise would not have been staked on the success of any one investment decision.

The second alternative was to enter the new field of multimotor, metal transport planes. For a company with Lockheed's resources, the risks of this alternative were very great. The major productive resources of the company would have to be committed to the development of the new model over a period of perhaps 18 months. Large amounts of new capital would be required. Indeed, the expenditures directly attributable to the new model would nearly equal the total assets of the enterprise early in 1933.

New capital would be extremely costly to the existing owners. The amounts involved were so large that the control of the existing management might be seriously challenged by purchasers of new stock. Maintenance of control would be essential to assure the management the ability to embark on an unimpeded long range program designed to place the company in a leading position in the industry. Even if control was retained, the sale of new stock would drastically dilute the interest of the old stockholders in the company.

At any stage after a substantial commitment had been made in the new model, failure or serious delay probably would have bankrupted the company; most of its resources would have to be sunk in this one development. Since the management was, so to speak, diving into a pool of unknown depth, it was likely to strike its head on the rocks of the technical difficulties of design and production. Frequent crashes of prototypes of new planes throughout the industry testify to the extreme degree of risk remaining in spite of all possible care and foresight by the management.

Even if these technical problems were successfully solved, other hurdles less subject to the control of the management would have to be negotiated. The country was in the depths of its greatest depression; great uncertainty pervaded the economic and political atmosphere. Legislation increasing the costs of raising new capital had recently been passed. The policy of the government with reference to air-mail contracts was confused. A new administration, suspected by some of anti-business views, was in power. Whether or not the administration was actually anti-business, the fact that many businessmen believed it to be so and acted on this belief affected the economic situation.

After the new model was completed, an Approved Type Certificate from the Aeronautics Branch of the Department of Commerce was needed before the plane could be marketed. Since the company was contemplating a pioneer model, numerous unforeseeable difficulties might arise before this certificate could be obtained. The company did not have the financial resources to survive long delays. Finally, after all other obstacles were overcome, the difficulties of marketing a new product in the midst of a deep industrial depression would have to be surmounted.

Clearly, the decision to enter the new area would be fraught with grave risks; the management by embarking in the transport field would place the future solvency of the company in the balance.

Offsetting these risks, however, were large potential rewards to the successful pioneer. The market appeared to be wide open for a small transport model, available at moderate initial costs and economical to operate. Prospects for large, profitable sales were excellent for the manufacturer who developed the leading plane in this area. Moreover, for Lockheed, entrance into the feeder-line and local transport field would be the entering wedge for a continuing expansion in the production of large, multi-motor planes.

In addition to the possibility of very large profits, the lure of a program that might eventually establish the company as one of the leading firms in the industry was a powerful enticement; by contrast, the safe course of continuing to improve established models would inevitably relegate the company to a position of secondary importance in the industry.

THE MANAGEMENT DECISION

Confronted with these alternatives, *the decision was made to take the risk.* Specifically, the decision was to develop and produce an all-metal, bi-motor, low-wing, ten-passenger transport plane of high performance characteristics. This plane, to be known as the Lockheed *Electra*, was designed to fill the demand for a feeder-type model, ideal for the entire business of small airlines and for the local business of the large lines.

THE DEVELOPMENT OF THE ELECTRA

The design and development of the first Electra were reported to be under way in a prospectus issued on September 25, 1933. The (undated) annual report of 1933, probably prepared in February, 1934, had this to say concerning the Electra.

> The decision to develop this particular plane and to enter the field of all-metal construction was a very important one. Apart from the large amount of capital necessarily required for such development work, the mere problems of design, construction, and personnel make this a great undertaking for any company, particularly for one of moderate size. The development of the "Electra" to December 31, 1933, is carried on the balance sheet as a deferred asset in the amount of $70,500.14 which amount must eventually be written off against sales when made. Although careful estimates of the costs of this model have been made, stockholders must realize that it may be some little time before this investment can be made to show profits, and certainly not before our organization has had a chance to build them with some semblance of production.

By 1934 the Electra had become the dominant element in Lockheed's business. The model was first test-flown in February, 1934. It was not until the middle of the summer, however, that a full Approved Type Certificate of the Aeronautics Branch of the Department of Commerce was granted. Numerous changes were necessary. Individually these changes were of comparatively minor importance, but collectively they involved considerable time and expense.

Ten Electras were delivered in 1934. For a variety of reasons, the costs of these planes exceeded the price of $35,000 at which the first orders were accepted. The 1934 annual report explains that this price was set before the effects of the NRA were felt and in competition with other prices at the time. Moreover, it emphasizes the fact "that normal costs cannot be expected to be reached until the completion of at least ten to fifteen planes."

The development cost of the Electra, narrowly defined, amounted to $139,404.[1] This amount does not include the excessive costs on the 1934 deliveries. These costs were charged directly to operations.

Other items complicated Lockheed's 1934 operations. An aluminum strike in 1934 shut off supplies of raw materials and spread to pattern and casting shops as well. A delay in the acceptance of the first Electra by the company's European representatives, Nederlandsche Vliegtuigenfabriek, precipitated costly negotiations.

The company emerged from 1934 in a precarious financial condition, but with a valuable new model successfully developed. Forty new Electras were delivered in 1935, 27 in 1936, and 41 in 1937. Operations have been profitable in each year since 1934, and the sales of the company have rapidly increased. The company's direct employment of labor in its own plant, and its indirect stimulus to employment by its purchases from other firms, has risen correspondingly. Exhibit 55 shows the company's sales, employment, and profit data since 1933.

Lockheed continued its program of experimentation and development after 1934. Exhibit 55 also reflects the results of

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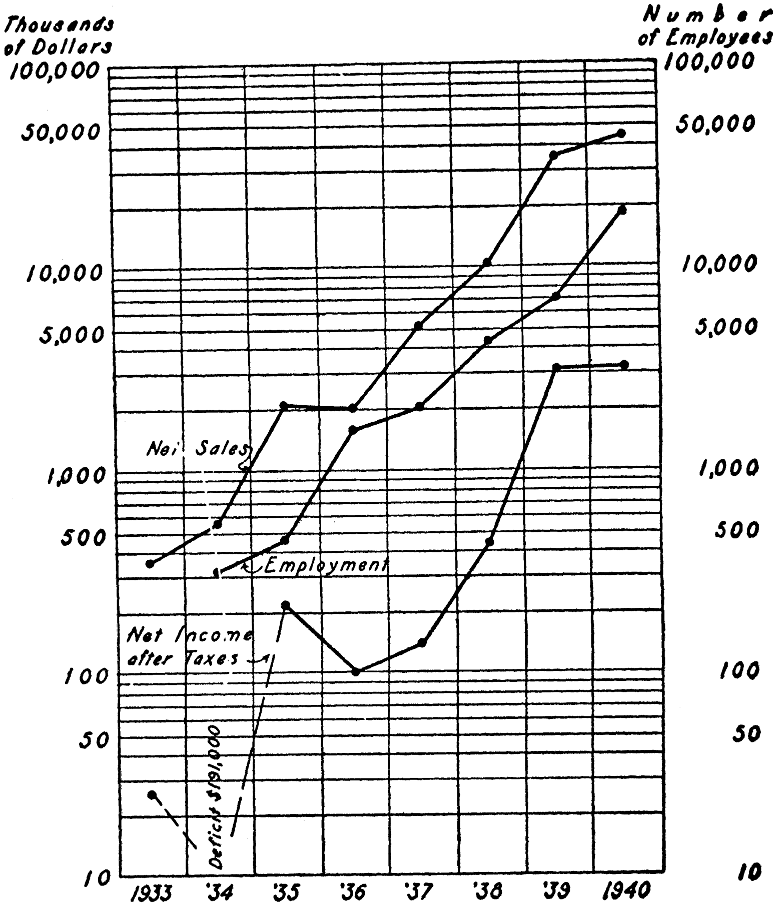
[1] The development cost of the Electra was amortized as follows: $23,877 in 1934, $112, 714 in 1935, and $2,813 in 1936.

EXHIBIT 55. SALES, EMPLOYMENT, AND NET INCOME OF LOCKHEED AIRCRAFT CORPORATION, 1933-1940



SOURCES: Annual reports to stockholders of Lockheed Aircraft Corporation and Moody's *Industrials.*

this program. Occasionally, the perfection of new models placed the company in a tight working capital position; indeed, the failure of any important model would have seriously impaired its financial status. At no time prior to the war, however, did its financial problems appear as critical as in 1934.

EXHIBIT 56. LOCKHEED AIRCRAFT CORPORATION: BALANCE SHEET, MAY 31, 1933

Current Assets	
Cash and cash items	$ 23,955
Accounts receivable less reserves	15,468
Inventories	47,979
Other	1,078
Total Current Assets	$ 88,480
Investment	1,000
Fixed Assets (primarily machinery and equipment)	39,877
Deferred Assets (new plane development of $24,064)	32,192
Intangibles	25,001
Total Assets	$186,550
Current Liabilities	$ 10,327
Capital Stock (124,600 shares at $1.00 per value)	124,600
Capital Surplus	49,774
Earned Surplus	1,849
Total Liabilities	$186,550

SOURCE: Prospectus, September 25, 1933.

EFFECT OF DEVELOPMENT OF ELECTRA ON FINANCIAL CONDITION OF LOCKHEED

Financial Position of Lockheed, May, 1933

Lockheed was in a very liquid financial position at the time the development of the Electra was inaugurated. As may be computed from Exhibit 56, its ratio of current assets to current liabilities was over 8.5 as of May 31, 1933. Its working capital at that time amounted to $78,153. Its financial position would have been wholly adequate had it continued to concentrate on the production of its outstanding models. A working capital of slightly over $75,000, however, was far too small to finance the development of the Electra.

Capital Stock Issue in 1933

Consequently, additional capital was sought. A complicated agreement was reached with G. Brashears and Company, a local Los Angeles house, under which 200,000 shares were to be issued to net the Lockheed management approximately $1 a share, after deducting all costs of issue. The price of the new stock to the investor was fixed at $1.40. Thus, the costs of issue amounted to approximately 40 cents on each dollar received by Lockheed.[1]

Implications of Stock Issue for Management Control

What price did the existing control group have to pay for the new capital? First, was the control of the existing management threatened? A definite answer to the latter question is not available from published sources. However, the control group was clearly assured control of nearly 50% of the outstanding stock, even if the entire new issue were taken down.[2] Maintenance of control was essential to guarantee an unhampered prosecution of the plans of the management for the

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[1] The details of the agreement were as follows: Lockheed would receive $1.12 for each share sold through Brashears. The company agreed to bear attorney's fees and all costs incident to the issuance of the stock; moreover, existing Lockheed stockholders agreed to transfer to Brashears one share of Lockheed stock for each 12 shares of the new issue purchased by Brashears. At the time 124,600 shares of the outstanding 125,700 shares were held by a holding company which, in turn, was controlled by the individuals actually controlling Lockheed. The agreement was that this holding company would transfer to Brashears one share of Lockheed stock for each 12 shares purchased by Brashears. The effect of this rather complicated transaction was that Brashears actually paid about $1.03 for each share of Lockheed stock which it purchased, but the company received $1.12 in cash for each new share issued. The difference of 9 cents represented the value of the stock transferred to Brashears by the old stockholders. In view of the close connection between the management and the principal stockholders, however, the statement that the new issue netted Lockheed approximately $1 a share, after deducting all costs of issue, does not distort the facts.

[2] Prior to the 1933 issue, the management controlled 124,600 of the 125,700 outstanding shares. If all 200,000 shares of this issue were purchased by Brashears, however, 16,666 of the outstanding Lockheed shares would have been turned over to Brashears in accordance with the one-for-twelve arrangement explained in the preceding footnote. The management would then have had control over 107,934 of the previously outstanding shares. Brashears also contracted to sell to the Lockheed control group 40,000 of the new offering of 200,000 shares. Only 39,451 of these shares were actually purchased, however. After this purchase the control group was thus assured of control of over 45% of the 325,700 shares which would have been outstanding had all 200,000 shares been taken down. The management may have also controlled other shares, although no evidence of such control is available from published data.

EXHIBIT 57. CHANGE IN LOCKHEED STOCK OWNERSHIP AS RESULT OF 1933 ISSUE

Status prior to issue		
Lockheed control group		124,600 shares
Outsiders		1,100 shares
Total outstanding shares		125,700 shares
Status subsequent to issue		
Lockheed control group		
Shares previously owned	124,600	
Less: Shares surrendered to Brashears	16,666	
Previously outstanding shares retained by control group	107,934	
Shares of new issue purchased by control group	39,451	
		147,385 shares
Outsiders		
Previous ownership	1,100	
New issue purchased by outsiders	160,000	
Previously outstanding shares received by Brashears from control group	16,666	
		177,766 shares
Total outstanding shares		325,151 shares
Percentage ownership prior to issue		
Lockheed control group as percentage of total outstanding shares		99%
Percentage ownership subsequent to issue		
Previously outstanding shares retained by control group (107,934) as percentage of total outstanding shares after issue, exclusive of new issue purchased by control group (285,700)		38%
Total ownership Lockheed control group (147,385) as percentage of total outstanding shares after issue (325,151)		45%

SOURCE: Computed from data in company prospectuses.

future development of the enterprise. While a strict majority control might not have been necessary for effective management control, a small company with outstanding growth prospects, such as Lockheed at this stage of its history, could not safely have counted too much on the inertia of minority stockholders as a means of maintaining control.

Cost of Outside Capital to Old Stockholders

In addition to weakening the control position of the Lockheed management, the new issue was costly to the old stock-

EXHIBIT 58. LOCKHEED AIRCRAFT CORPORATION: BALANCE SHEET, DECEMBER 31, 1933

Current Assets	
Cash and cash items	$ 63,752
Accounts receivable less reserves	29,362
Inventories	100,682
Other	5,916
Total Current Assets	$199,712
Investment	1,000
Fixed Assets (primarily machinery and equipment)	63,446
Deferred Assets (excluding development cost of Electra)	24,510
Deferred Development Cost of Electra	70,500
Intangibles	25,001
Total assets	$384,169
Current Liabilities	
Accounts payable	$ 48,563
Federal income tax accrued	4,096
Other	12,674
Total Current Liabilities	$ 65,333
Capital Stock (240,853 shares at $1.00 par value)	240,853
Capital Surplus	62,238
Earned Surplus	15,745
Total liabilities	$384,169

SOURCE: Annual Report of the company for the year 1933.

holders, since it substantially reduced their proportionate equity in the company. In rough terms, for instance, a 10% interest in the company was reduced by the issue to less than a 4% interest. The earning power of the company would have to be increased by about 2.5 times by the new issue to maintain the per share earnings of the outstanding stock. Exhibit 57 shows the computations on which these statements are based.[1]

A final method of appraising the cost of the new capital is by a price-earnings ratio analysis. Earnings in 1933 were at an annual rate of approximately 20 cents a share. The $1 a share

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[1] The cost of the new capital can perhaps best be determined by ignoring the 39,451 shares of the new issue purchased by the old stockholders. Recourse to the public was not necessary to obtain these funds. In effect, therefore, the old stockholders had to surrender 16,666 of the shares they already held in exchange for the new capital represented by the issue of 160,000 shares to the public. The equity of the old stockholders thus fell from 99% to 38%. By the purchase of an additional 39, 451 shares of the new issue, the 38% was raised to 45%.

EXHIBIT 59. SOURCE AND APPLICATION OF FUNDS ANALYSIS OF LOCKHEED AIRCRAFT CORPORATION, 1934

(In thousands of dollars)

Source of funds		
Increase in capital stock	$152	
Premium on stock sold in 1934	83	
Depreciation	17	
Amortization of development expense	24	
Amortization of leasehold improvements	4	
Part payment on foreign license agreement	7	
Decrease in working capital	73	
Deficit	−191	
Total		$169
Application of funds		
Increase in property plant and equipment	$ 61	
Development of Electra model	71	
Leasehold improvements, unamortized balance	14	
Other miscellaneous items	23	
Total		$169

SOURCE: Computed from annual reports of 1933 and 1934.

received for the new stock thus amounted to approximately five times 1933 earnings. This calculation, however, has a very restricted meaning in view of the promotional character of investments in Lockheed at this stage of its development.

Financial Position of Lockheed, End of 1933

The balance sheet of December 31, 1933, shown in Exhibit 58, provides the next available cross section of Lockheed's financial position. The working capital of the company had risen from about $75,000 in May to nearly $135,000 at the end of the year, in spite of the investment of $70,000 in the development of the Electra. The additional working capital was obtained partly from the new capital stock offering and partly from retained earnings. No serious weakness was yet apparent in Lockheed's current position.

Deterioration in Current Position during 1934

By the end of 1934 the expense of developing the Electra had seriously extended Lockheed's financial position. The degree of deterioration may perhaps best be depicted by a source and application of funds analysis and by a study of the

EXHIBIT 60. ANALYSIS OF CHANGES IN WORKING CAPITAL POSITION OF LOCKHEED AIRCRAFT CORPORATION IN 1934

(In thousands of dollars)

Total current assets, 12/31/33		$200
Total current liabilities, 12/31/33		$ 65
Working capital		$135
Ratio current assets to current liabilities		3.08
Increases in current assets during 1934		
Inventories	$156	
Decreases in current liabilities		
Accrued Federal income tax liabilities	4	
		$160
Decreases in current assets		
Cash on hand and in banks	$ 4	
Accounts receivable	17	
Miscellaneous current assets	5	
	$ 26	
Increases in current liabilities		
Collateral notes payable	$ 35	
Notes payable—trade	7	
Accounts payable	39	
Wages payable	5	
Contracts payable	2	
Customers' deposits	47	
Due to foreign representatives	70	
Accrued liabilities	2	
	$207	
		$233
Net decrease in working capital		$ 73
Total current assets, 12/31/34		$330
Total current liabilities, 12/31/34		$269
Working capital, 12/31/34		$ 61
Ratio current assets to current liabilities		1.23

SOURCE: Computed from annual reports of 1933 and 1934.

shift in Lockheed's working capital position. As shown in Exhibit 59, Lockheed raised $235,000 by issue of capital stock in 1934.[1] In spite of this net addition to its capital, it suffered a decline in working capital amounting to $73,000. This

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[1] In addition to the unissued shares remaining from the 1933 flotation, rights to stockholders resulted in the issuance of 48,959 shares in 1934. Another 25,000 shares were sold through Brashears at $2 a share. The ability to float stock at this price in spite of the precarious financial position of the firm presumably reflected the satisfactory progress made on the Electra development.

EXHIBIT 61. STATEMENT OF CURRENT ASSETS AND CURRENT LIABILITIES OF LOCKHEED AIRCRAFT CORPORATION, DECEMBER 31, 1934

(In thousands of dollars)

Current Assets		
Cash on hand and in banks		$ 60
Trade accounts receivable less reserves		12
Due from officers and employees		1
Inventories		
Raw material	$117	
Finished parts	52	
Work in process	88	257
Total current assets		$330
Current Liabilities		
Collateral notes payable		$ 35
Notes payable, trade		7
Accounts payable		88
Wages payable		14
Contracts payable		2
Customers' deposits		47
Due to foreign representatives		70
Accrued liabilities		6
Total current liabilities		$269
Working capital		$ 61

SOURCE: Annual Report of the company for the year 1934.

decline may be attributed to an increase in fixed assets of $61,000 and to the excessive costs of producing the first few Electras. A deficit of $191,000 was reported in 1934 even though the development expenses on the Electra were capitalized in the amount of $71,000, of which only $24,000 were written off in 1934. The deficit of $191,000 represented approximately 60% of the net worth of the company at the beginning of 1934. The financial strain on Lockheed by the end of 1934 is even more apparent when changes in its working capital position are analyzed. Exhibit 60 presents this analysis. At the beginning of 1934, Lockheed had working capital of $135,000 and a fairly comfortable current ratio of 3.08. During 1934, however, current liabilities increased by $204,000.[1]

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[1] The most important increases were collateral notes payable, $35,000; accounts payable, $39,000; customers' deposits, $47,000; payments and deposits of foreign representatives, $70,000.

Offsetting this expansion in current liabilities was an increase in inventories of $156,000. *Cash, accounts receivable, and other current assets actually decreased by $26,000.* Not only did the company's working capital decrease by $73,000 and its current ratio drop from 3.8 to 1.2, but over 75% of the current assets on hand, as shown in Exhibit 61, were inventories. *Cash of $60,000 was held against current liabilities of $269,000.*

It should be noted that the financial position of the enterprise at this time cannot be ascribed in any degree to personal improvidence on the part of the management or stockholders. No dividends were paid on 1933 earnings. Indeed, the company paid no dividends at all until 1939, notwithstanding its favorable earnings record after 1934 and the existence of the undistributed profits tax in 1936 and 1937. Moreover, officers' salaries were very moderate. During 1933 and 1934, the president received $4,800; the treasurer, $3,600; and the secretary, $2,400. The full resources of the company were committed to its policy of expansion.

These data clearly demonstrate that Lockheed's financial position was seriously extended by the end of 1934. The company was manifestly in a position where its continued existence as a solvent enterprise depended on the successful marketing of the Electra model.

CHAPTER XIV

Polaroid Corporation

THIS chapter summarizes the story of the Polaroid Corporation and then examines the potential effect of Federal taxes on the postwar expansion of the company. The tax analysis centers on the question: How will the postwar tax structure influence Polaroid's expansion in the years after the transition period has been completed?

POLAROID PRODUCTS AND PROCESSES

Polaroid's early business consisted largely of the development, manufacture, and sale of light-polarizing materials and of accessories necessary for their utilization. Polarized light has been the subject of scientific research and experimentation for centuries, but its commercial applications prior to Polaroid were effectively limited by the absence of any plentiful, low-cost material for polarizing light. Edwin H. Land, founder of Polaroid, gave a new impetus to the science of polarized light by his invention of a commercially practicable light polarizer. Mr. Land made possible the production, at relatively low cost, of a continuous cellulosic sheeting, capable of polarizing or arranging light vibrations as light passes through the sheeting. The numerous potential commercial applications of this principle have been colorfully described by *Fortune* magazine, from which the following excerpts are quoted:

> ...Polaroid, while expensive in comparison with glass, involves no big investment. It has now been on the market only three years [as of 1938]. But already people are wearing it in sunglasses, researching with it in microscopes, telescopes, and other optical instruments, reading by it in lamps, using it in advertising color displays, taking pictures with it in cameras, and looking through it in binoculars. Children play with it in

> educational toys. It has—experimentally—produced colored movies *in three dimensions*. And every automobile driver in America may soon be clamoring for it because it is capable of eliminating headlight glare completely and forever...
>
> When you look at a few colorless sheets of Cellophane between two sheets of Polaroid you see...fantastic brilliance... mathematically perfect color complementaries. If you examine a milk bottle through Polaroid, rainbow-colored stripes reveal the places where the glass has been improperly annealed ...Polarized light is one of the few mediums through which films a mere molecule in thickness can be seen. It enables jewelers almost invariably to tell real from artificial gems. It shows defects in silk stockings or sausage casings....You have never really seen the back of your own hand until you have looked at it under polarized light: Then it is as if you had stripped off a glove; a shiny film of reflected light is peeled away, and your hand not only changes color and texture, but the flesh shows up mountains and valleys and contours you never suspected were there. But for the layman perhaps one of the most interesting applications of Polaroid is its use on the water. Because it eliminates surface glare, it enables the eye to see into water much more deeply than normally. A camera equipped with Polaroid can photograph a submerged submarine. And many deep-sea fishermen who find sunglasses necessary prefer polarized glasses, because they disclose the fish rising for the bait just before the strike.[1]

This graphic statement was written in 1938. Since then many new products have been developed in Polaroid laboratories. For instance, the 1940 annual report describes important photographic developments as follows:

> The Polaroid Vectograph, a fundamental invention in the field of photography, was announced to the scientific world in June, 1940. Three-dimensional Vectographs are pictures in the form of single prints, easy to make and offering a convincing reproduction of the depths, space, and reality of the scenes which they picture.
>
> Much like ordinary mounted photographs in physical form, Vectograph still pictures may be held in the hand, pasted in an album, inserted in books, catalogs, and reports. When they are

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[1] *Fortune*, September, 1938, pp. 74-76.

viewed through Polaroid spectacles, however, they present the full sense of depth and solidity of the original scene, and the thin paper print appears to be as deep as the scene itself. Made in lantern-slide form, they may be projected on a screen with an ordinary lantern-slide projector, without any attachments or changes, for audiences supplied with inexpensive card type viewers.

A simple processing technique for use by professional photographers was developed, and pilot equipment for manufacturing Vectograph film was built in preparation for commercial production of the new product.

Vectograph still pictures in natural color and Vectograph motion picture film suitable for use in existing projector equipment have been made experimentally. Research is now being directed toward the further development of these forms of the new medium.

During the war Polaroid has produced substantial quantities of Vectographic materials and field processing equipment for making three-dimensional aerial views of terrain. The 1943 annual report lists other war products of the company, although many of these products are still veiled behind war censorship. In addition to the Vectographic materials the items listed include the following:

Goggles for a variety of services—
  Variable-Density Goggles, for aircraft and antiaircraft gunners to use in reducing glare from the sky and sun;
  Dark-Adaptor Goggles, for preconditioning the eyes for night vision;
  All-Purpose Goggles, for general use by all branches of the Service, as protection against glare, wind, and dust;
  Aviation Goggles, for Army and Navy flying personnel; and
  Fog-Free Goggles, for eye protection under conditions which cause lens-fog in ordinary goggles.
Polarizing Filters and *Nonpolarizing Colored Filters*, for use in gunsights, range finders, periscopes, binoculars, and other military instruments.
Precision Plastic Optical Parts, for telescopes, fire control and signaling devices; and other instruments.
Blind Flying Training Equipment, for blacking out aircraft used in training pilots to fly at night.

Position Angle Finders, for finding the elevation of aircraft above the horizon. Antiaircraft *Machine Gun Trainers*, for teaching gunners how to use tracer-bullet observation in the control of antiaircraft gunfire.

Perhaps the most interesting aspect of this list is that it includes fundamental contributions outside the area of polarized light. The recently announced total synthesis of quinine is illustrative of Polaroid's policy of sponsoring basic scientific and industrial research in many diverse fields. This development was undertaken and successfully completed by Polaroid on its own initiative, even though the United States Government and a large chemical company believed the development too lengthy for war purposes.

EARLY HISTORY OF POLAROID

The early history of Polaroid is essentially a biography of Edwin H. Land. Mr. Land started his scientific experiments while still in grammar school. At that time he was interested primarily in television, but the importance for that purpose of work on polarizers soon became clear. Mr. Land continued his experiments throughout his preparatory schooling and at Harvard College. His first important patent was applied for in 1929, when he was about 20 years of age. He left college in his senior year to devote his entire time to experimentation with polarized light. In 1932, Mr. Land and G. W. Wheelwright, a laboratory assistant at Harvard, set up the Land-Wheelwright Laboratories, Inc., in Wellesley, Massachusetts. Their intention was to devote themselves to general engineering practice and to the specific task of bringing the new polarizer into commercial production. Shortly thereafter, the laboratory was moved to a basement on Dartmouth Street, Boston. Here attention was centered on the research and developmental problems incident to the manufacture of polarizing sheeting on a commercial basis.

During these early stages the enterprise was financed largely by moderate advances from the families of Land and Wheelwright. Great economy was practiced; the young inventors worked in dingy surroundings and spent as little as possible.

The first applications selected for commercial development were those requiring small areas of material. Eastman Kodak Company signed a contract calling for the manufacture by Polaroid of photographic light filters called Polascreens on November 30, 1934. Revenue from these sales to Eastman was instrumental in financing subsequent research.

A second important contract, signed on November 5, 1935, called for the manufacture of Polaroid Day Glasses by the American Optical Company. These glasses, the first Polaroid product intended for popular use, were introduced by the American Optical Company in December, 1936. Meanwhile, Polaroid sheeting was being sold in the form of small discs for demonstration purposes in school and college laboratories. Public announcement of the invention in January, 1936, attracted widespread interest. By July, 1936, larger quarters were needed to house the growing organization.

ACQUISITION OF OUTSIDE CAPITAL

By 1937 the organization was ready for outside capital. A staff of some 50 individuals had been acquired. Numerous applications of light polarization had been developed to the stage where investment prospects appeared promising. Contracts had been signed with two large firms. Beginning in early 1937, negotiations for outside financing were carried on, first through an intermediary, and later directly with Schroder Rockefeller & Co., Inc., and Kuhn, Loeb & Co. of New York. After early negotiations had failed to materialize, an agreement was finally reached in a contract dated August 10, 1937.

Under this contract the Land-Wheelwright interests agreed to organize the Polaroid Corporation with authorized capital stock of

7,500 shares of 5% cumulative, Class A stock with a par value of $100 a share,
2,500 shares of $5 cumulative, Class B stock with a par value of $5 a share, and
100,000 shares of common stock with a par value of $1 a share.[1]

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[1] Class A stock has first preference as to dividends and assets, and Class B stock has second preference. In voluntary liquidation, Class A and Class B stocks are

The Lands and Mr. Wheelwright also agreed to transfer to the new corporation all patents and patent applications owned by Mr. Land and all other interests of the Lands and Mr. Wheelwright in the development. This contribution was valued at $132,627, the total cost of the development to August, 1937. Moreover, Mr. Land agreed to enter into an employment contract with the new company for a period of 10 years.

In exchange, the Lands and Mr. Wheelwright received the entire issue of 2,500 shares of Class B stock and, in effect, approximately 60% of the common stock. This 60% figure was later reduced below 50% by the sale of Voting Trust Certificates representing common stock. The Voting Trust Agreement, however, guaranteed to Mr. Land personal control over 71,500 shares of common stock for a 10-year period.[1]

Outside capital amounting to $750,000 was supplied through Kuhn, Loeb & Co. and Schroder Rockefeller and Co., Inc. Half of this amount was to be paid immediately; the remainder

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entitled to $100 a share and accrued dividends. Note that Class B stock is entitled to $100 a share in voluntary liquidation even though its par value is only $5. In involuntary liquidation the net assets after the payment of all debts are to be distributed pro rata, share and share alike, among the holders of the three classes of outstanding stock. Subject to certain restrictions, Class A and Class B stocks are callable at $100 a share at any time on 60 days' notice. Consent of a majority of the Class A stock is required for certain transactions, such as the creation of mortgage debt, the issue of stock ranking prior to or equal to Class A stock, and mergers or consolidations. The common stock has sole voting power except that the preferred stockholders may elect minority representation on the Board of Directors if unpaid preferred dividends accumulate to $10 a share or more.

[1] The details of the Voting Trust, voluntarily agreed to by all parties in the financing, are briefly summarized on pp. 217-218. In the financing deal, the Lands and Wheelwright originally received the entire authorized issue of 100,000 shares of common stock. A separate clause in the agreement, however, required them to turn over 22,500 shares to the purchasers of the Class A stock as part compensation for the $750,000 supplied by these purchasers. Moreover, an additional 16,733½ shares were sold by the Lands and Wheelwright at the nominal price of $1 a share to other individuals who had participated in the financing negotiations. Thus, 39,233½ shares, or approximately 40% of the common stock, were transferred directly to other parties. In addition, options were also granted to participants in the financing deal to purchase, over a four-year period, at prices commencing at $25 a share, Voting Trust Certificates representing 7,500 shares of common stock. These options were exercised to the extent of 7,000 shares. The exercise of the options reduced the ownership interest of the Lands and Wheelwright in the common stock to less than 54%. Finally, as indicated in the text, the Lands and Wheelwright also sold some shares for cash, partly to pay for certain obligations assumed by them in connection with the prior development. As of March 15, 1943, the Lands owned 1,000 shares of common stock and Voting Trust Certificates representing 40,265 shares of common stock. Mr. Wheelwright owned Voting Trust Certificates representing 4,366½ shares at this date.

EXHIBIT 62. NET SALES, NET INCOME, AND FEDERAL INCOME AND EXCESS PROFITS TAXES OF POLAROID CORPORATION, 1937-1943

(In thousands of dollars)

Year	*Net Sales**	*Net Income before Taxes*	*Income and Excess Profits Taxes*	*Net Income after Taxes*
1937	$ 142	$ 9	$ 2†	$ 7†
1938	195	*73d*	0	*73d*
1939	761	35	7	28
1940	720	*96d*	0	*96d*
1941	1,032	153	27	126
1942	4,119	429	281	148
1943	10,739	760	558	202

d = Deficit
*Net sales include a small amount of revenue from royalties.
†Estimated

SOURCE: Annual Reports of company.

was to be paid at any time prior to December 31, 1939, at the call of the company, and was so paid. In exchange, the Kuhn, Loeb and Schroder, Rockefeller interests received the entire issue of 7,500 shares of Class A stock and 22,500 shares, or 22.5%, of the common stock. In effect, a block of one share of Class A stock and three shares of common stock was sold for $100, the par value of the Class A stock.[1]

SUBSEQUENT EXPANSION

With the aid of this outside capital, Polaroid's program of expansion was still further accelerated. The sales data shown in Exhibit 62 and Exhibit 63 illustrate this expansion. Sales rose from less than $200,000 in 1938 to over $1 million in 1941, the last year of large peacetime sales. Under the pressure of wartime demand the $10 million figure was passed in 1943. In 1944, the company operated at an annual rate in excess of $13 million.

It is important to emphasize the fact that the fivefold expansion in sales from 1938 to 1941 does not adequately portray the sales potential developed in the Polaroid laboratories in those

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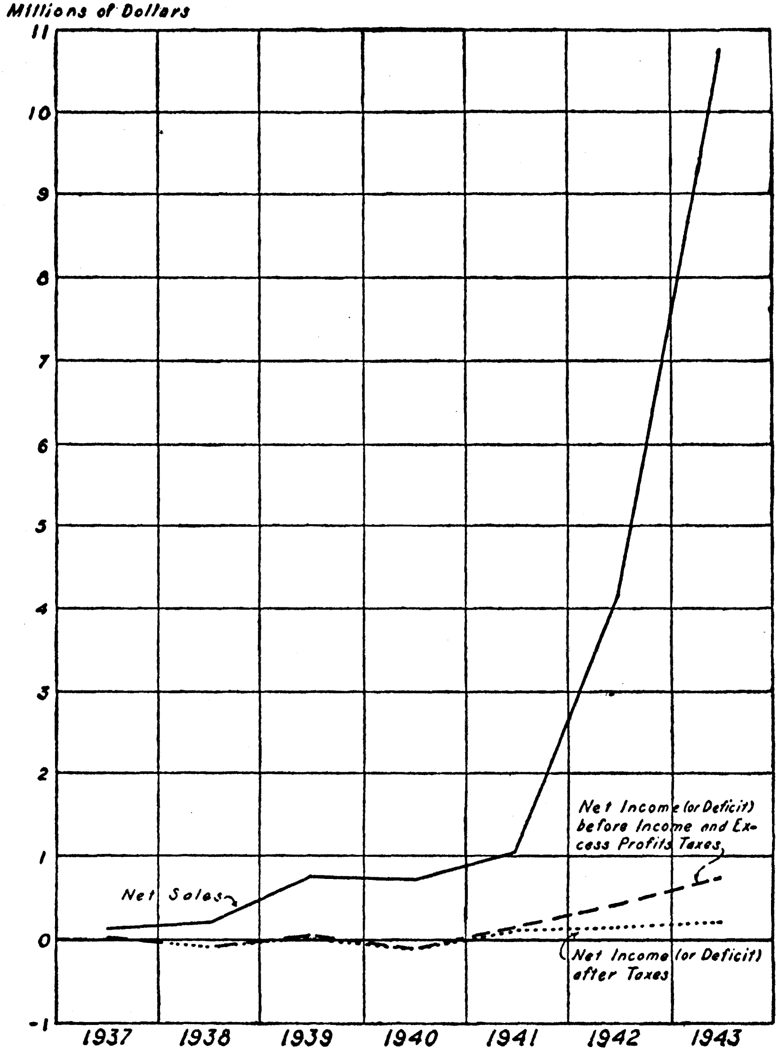
[1] These two groups were granted, and later exercised, options to purchase Voting Trust Certificates representing 5,000 shares of common stock.

EXHIBIT 63. NET SALES AND NET INCOME OF POLAROID CORPORATION, 1937-1943



SOURCE: Annual Reports of company.

years. For one thing, the potential mass markets for the few products sold in 1941 were by no means fully exploited. Sales in 1941 consisted mostly of sunglasses, desk lamps, and polarizing filters. Substantially increased sales of these products may well occur after the war.

But even greater sales potentialities lie in the introduction of entirely new products. Much of the $275,000 spent on research in 1938, 1939, and 1940 was devoted to the development of products which were not sold commercially prior to the war. For example, the application of Polaroid products to automobile lighting has been a major object of research since the formation of the company. If this market can be fully developed by Polaroid, sales in this field alone would run to many millions of dollars. Similarly, the previously described application of Polaroid processes to the photographic and motion picture industries also presents challenging potentialities.

Undoubtedly Polaroid has developed other products which have not been publicly announced. If even a few of these new developments can be successfully marketed, Polaroid's postwar sales are certain to exceed its prewar sales by a wide margin. Polaroid's performance prior to and during the war augurs well for a successful outcome of its efforts to develop and introduce new products after the war.

PROFIT EXPERIENCE

As shown in Exhibits 62 and 63, a deficit of about $135,000 was accumulated during the period 1937 through 1940. Losses in 1938 and 1940 more than offset the meager profits of 1937 and 1939. This accumulated deficit was nearly made good in 1941. In this year a profit of $126,000 was shown after the deduction of income taxes amounting to $27,000. Tax liabilities in 1941 were abnormally small, since Polaroid was able to offset its 1940 deficit of $96,000 against its 1941 profits before these profits were taxed. Even so, profits after taxes were moderate, amounting to approximately 12% of sales and 14% of net worth.

The low prewar earnings of the company can be ascribed largely to the emphasis placed by the management on its program of long-run expansion. As previously noted, much of the important developmental work done in Polaroid research laboratories prior to the war had not yielded a monetary return. Even though research and development expenditures were capitalized prior to 1941, the diversion of much of Polaroid's best talent to long-range developments undoubtedly impaired the firm's current profit position.[1]

Before the war, Polaroid was also experiencing in its production department the growing pains of a young, rapidly expanding organization. The deficit during 1938, for instance, was attributable largely to the high cost of developing new manufacturing methods and of building automatic machinery to laminate lenses for sunglasses and other products.

Late in 1939 larger quarters were leased at the company's present location in Cambridge. The new premises required considerable remodeling. Improvements in plant and machinery interrupted normal production and sales activity. Duplication in labor and equipment was inevitable. Production costs were therefore abnormally high during 1940, particularly during the period of the shift-over.

These prewar expansions laid the groundwork for Polaroid's large volume of war production. During 1942 and 1943 profits were large prior to the deduction of income and excess profits taxes. Federal taxes, however, absorbed the major portion of these profits. Since base period earnings were negligible, the company's excess profits credit is limited to 8% of its invested capital, or to from approximately $70,000 to $95,000, over the period 1940-1943. With amounts set aside as contingency reserves restored to income, profits after taxes in 1942 and 1943 amounted to about 15% of net worth.[2]

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[1] Effective January 1, 1941, the management adopted the policy of charging the cost of the company's research department to profit and loss because of the nature of the research activities in 1941 and subsequent war years, and because the company undertook to conduct research under contract resulting in research income, as such. Prior to 1939, no amortization of deferred experimental and development costs was undertaken. During 1939 and 1940, deferred experimental and development costs allocated to each product were amortized as the product was marketed.

[2] This discussion was written before the 1944 figures became available. In 1944 net sales exceeded $13 million, and net profits after all taxes were nearly $475,000 before deductions for contingency reserves.

EXHIBIT 64. CONSOLIDATED BALANCE SHEET OF POLAROID CORPORATION AS OF DECEMBER 31, 1943

Assets	
Current Assets	
Cash	$ 583,356
Accounts Receivable less Reserves	833,623
Merchandise Inventories	1,040,227
Advances to Subcontractors	6,055
Restricted Cash in Bank, Contract Work in Process, Accounts and Termination Claims Receivable, and Advances to Subcontractors, Subject to Lien by U. S. Government	2,383,916
Total Current Assets	$4,847,177
Machinery, Equipment, Furniture and Leasehold Improvements less Reserve for Depreciation and Amortization	291,850
Patents, Patent Applications, and Trade Marks, less Reserve for Amortization	128,316
Deferred Experimental and Development Costs	88,956
Postwar Refund on Excess Profits Tax	77,296
Deferred Expenses and Other Assets	67,184
Total Assets	$5,500,779
Liabilities	
Current Liabilities	
Notes Payable to Banks	$400,000
Accounts Payable	1,072,441
Provision for Taxes Payable	744,442
Accrued Expenses	1,790
Liability for Advances against U. S. Government Contracts	2,079,991
Total Current Liabilities	$4,298,664
Reserve for Contingencies	100,000
Capital Stock and Surplus	
5% Cumulative Class A	750,000
$5.00 Cumulative Class B	12,500
Common	107,000
Capital Surplus	31,826
Earned Surplus	200,789
Total Liabilities and Capital	$5,500,779

SOURCE: Annual Reports of company.

EFFECT OF WARTIME EXPANSION ON FINANCIAL POSITION

As Exhibits 64, 65, 66, and 67 show, wartime expansions seriously extended Polaroid's current financial position. During the period 1940 through 1943, Polaroid had a tenfold increase in *total* current assets and a fifteenfold rise in sales. Although management salaries were low and dividend pay-

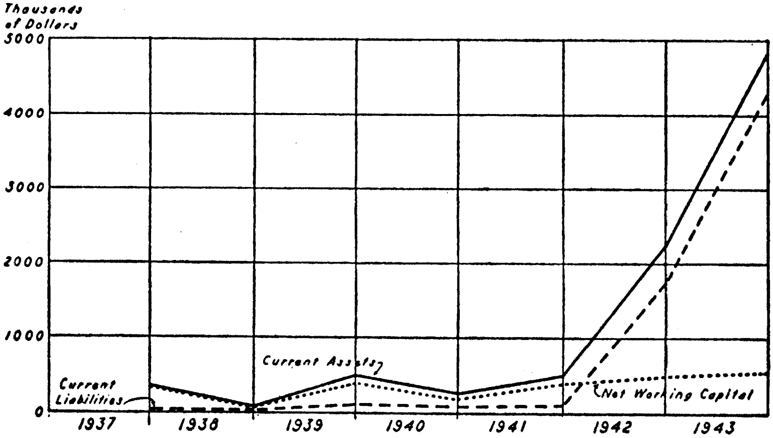
EXHIBIT 65. CURRENT ASSETS, CURRENT LIABILITIES, AND NET WORKING CAPITAL OF POLAROID CORPORATION, 1937-1943

(In thousands of dollars)

December 31	*Current Assets*	*Current Liabilities*	*Net Working Capital*
1937	$ 352	$ 12	$340
1938	71	19	52
1939	478	89	389
1940	245	66	179
1941	480	89	391
1942	2,223	1,727	496
1943	4,847	4,299	548

SOURCE: Computed from Annual Reports of company.

EXHIBIT 66. CURRENT ASSETS, CURRENT LIABILITIES, AND NET WORKING CAPITAL OF POLAROID CORPORATION, 1937-1943



SOURCE: Computed from Annual Reports of company.

ments small, net worth rose by less than 50%, or by only $350,000, over the same period. Of this amount, $200,000 was invested in net additions to fixed assets. Consequently, *net* working capital[1] increased by only $150,000. As a result,

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[1] Net working capital is defined as the excess of current assets over current liabilities.

EXHIBIT 67. NET WORTH, NET SALES, AND PERCENTAGE OF NET WORTH TO NET SALES OF POLAROID CORPORATION, 1937-1943

(In thousands of dollars)

December 31	*Net Worth*	*Net Sales**	*Percentage of Net Worth to Net Sales*
1937	$ 515	$ 142	362.7
1938	450	195	230.8
1939	853	761	112.1
1940	757	720	105.1
1941	875	1,032	84.8
1942	1,012	4,119	24.6
1943	1,202	10,739	11.2

*Net sales include a small amount of revenue from royalties.

SOURCE: Annual Reports of company.

the ratio of current assets to current liabilities fell from 5.4 at the end of 1939 to 1.1 at the end of 1943; similarly, the ratio of net worth to sales declined from 1.12 to 0.11 over the same period.

The low level of dividend payments and management salaries is manifest from the following data. No dividends have been paid on the common stock or on Class B stock since the formation of the firm. Through 1943, only $23,438 had been paid on the Class A stock. On December 31, 1943, unpaid cumulative dividends on Class A and Class B stock aggregated slightly over $250,000.[1]

Management salaries have also been low. Mr. Land's salary ranged from $6,000 to $12,875 over the period 1938-1941. During 1943 his salary was $17,500, and in 1944 it was $25,000. Relative to the remuneration of executives in comparable positions and to Mr. Land's outstanding ability and research contributions, this salary record is very moderate. The salaries of the four other principal officers of the firm ranged from $10,000 to $15,000 in 1943.[2]

[1] In 1944 dividends on the Class A stock were paid in the amount of $64,688, clearing up the arrears on this class of stock through December 24, 1940.

[2] Mr. Land's ten-year employment contract entered into at the formation of the company stipulated that he was to receive a salary of $15,000 per annum for three years and $25,000 for the following three years, except that the increase was not to become effective until all accumulated dividends on the outstanding Class A and

NEED FOR ADDITIONAL CAPITAL TO FINANCE POSTWAR EXPANSION

So much for the story of Polaroid's development and for a summary of its financial position at the end of 1943. The question now arises: Will Polaroid have enough capital available to be able to proceed promptly with its program of postwar expansion?

This problem was considered in some detail in the interim report.[1] Estimates prepared at that time indicated that Polaroid would probably be forced to restrict or delay seriously its program of postwar expansion because of acute capital shortages. More recent data indicate that Polaroid's financial position at the end of the war will be somewhat stronger than then seemed probable, largely because the European war lasted longer than was expected when the interim report was prepared.[2] But the difference is only one of degree[3] and the essential problem remains: Unless an adequate supply of additional capital can be raised on terms acceptable to the management, capital shortages are likely to retard the company's postwar expansion.

POSSIBLE SOURCES OF OUTSIDE CAPITAL

The critical reader may very well be inclined to ask: If Polaroid needs new capital, why doesn't it raise this capital by floating new securities? The answer is that the Polaroid management may not want new capital badly enough to incur

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Class B stock had been paid. Mr. Land, however, waived part of the salary accruing to him under this contract. The Polaroid Corporation has carried $500,000 of life insurance on the life of Mr. Land since 1937.

[1] *Effect of Federal Taxes on Growing Enterprises*, Study No. 2, Polaroid Corporation (Harvard Business School, Division of Research, 1944), pp. 14-31.

[2] Record levels of production in 1944 brought about a substantial improvement in Polaroid's financial position. Net worth increased to $1,593,000 and net working capital nearly doubled. By failing to take into consideration 1944 figures, therefore, the text overstates somewhat the stringency of Polaroid's financial position.

[3] Detailed estimates of Polaroid's financial position during the transition period are not presented in the present volume, since the primary interest of this book is in problems of postwar tax structure and capital supply. In any case, the exact size of the capital shortage which will probably develop during the transition is largely incidental to the essential argument of this chapter.

the cost of acquiring it. The crucial cost to Polaroid would not be primarily the possible financial loss to the existing stockholders because of the dilution in their equity interest in the firm, but rather the weakening of the control position of the management.

Polaroid conceivably could raise additional capital by any of the following methods: (1) a bond issue; (2) a preferred stock issue; (3) an issue of nonvoting common stock; (4) the sale of one or more lines of the company's products; or (5) an issue of common stock with full voting power. Actually, probably only alternatives (4) and (5) are effectively available to the company.

New capital presumably could be raised by piecemeal additions to the existing complicated capital structure or by a complete overhaul of this structure. The prescription of an investment banker for a firm in Polaroid's position normally would be that a simplification of the capital structure be undertaken — either in one stroke or by a coordinated series of moves. The recommended recapitalization presumably would include a cleaning up of outstanding arrearages on both the Class A and Class B stocks and the consolidation of these issues into one preferred issue. A complete elimination of all preferred issues might even be recommended. Such a recapitalization would place the company in a much stronger position for recourse to the capital market to finance subsequent expansions over a long period of years.

Any such plan of recapitalization, however, would almost inevitably weaken the control position of the management. In view of the obvious importance placed by the management on its control position, any such drastic action as a complete overhaul of the existing capital structure seems highly unlikely.[1] Consequently, the remainder of this section considers piecemeal changes in the company's capital structure.

Issue of Funded Indebtedness or Preferred Stock

The existing capital structure probably precludes the raising of substantial amounts of capital by floating senior securities. Long-term debt is restricted to a maximum of

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[1] It is of course quite possible that minor steps such as a recapitalization of arrearages on preferred dividends might be undertaken.

$150,000 unless the owners of a majority of the outstanding shares of Class A stock approve a larger indebtedness. Similarly, consent of these shareholders is required before a new preferred stock ranking prior to or equal with the outstanding Class A stock can be issued. The present Class A stockholders would have little incentive to approve an issue of funded debt or of additional preferred stock.

Moreover, even apart from these legal restrictions, it is highly dubious that senior securities could or should be floated. Funded indebtedness is generally recognized to be an undesirable method of financing a risky venture, judged both by the hazards and rigidities which it imposes on the borrower and by its effects on general economic stability.

With reference to preferred stock, the Polaroid capital structure is already so top-heavy that the opportunities for additional issues are slight. Preferred stock constitutes about 50% of the company's net worth. Unpaid cumulative dividends on this stock exceeded $240,000 at the end of 1944. Unless a new dividend policy is adopted, dividend arrearages may well exceed $300,000 by 1947, when the need for new capital will probably become serious. The possibility of issuing additional preferred stock equal to or senior to the outstanding issues therefore appears remote.

Likewise, an investor would have little incentive to buy a new preferred stock junior to the outstanding issues unless this stock offered substantial participation and conversion rights. Preferred stock with such rights would present much the same threat to the control group as would an issue of additional common stock. Moreover, it is highly doubtful that a reputable investment banking firm would handle an additional class of preferred stock in view of Polaroid's present capital structure.

Issue of Nonvoting Common Stock

A substantial part of the common stock now outstanding is temporarily deprived of its voting power by the Voting Trust now in force. This Trust was formed when the company was organized in order to guarantee control of the firm to Mr. Land. The Voting Trust expires in September, 1947, however, at which time full voting rights will revert to the common stockholders.[1]

The original offering of stock was regarded by Polaroid and the cooperating banking firms as a private issue as defined by the relevant provisions of the Securities Act of 1933. Consequently, the offering was not registered with the Securities and Exchange Commission. Later, however, the securities were registered at the request of the Commission even though the company still believes that registration was not required by law.

It now seems highly doubtful that a renewal of the Voting Trust will be feasible on its expiration in 1947. Even if the Voting Trust should be renewed, it would secure the management's control position only for a limited period of time. Consequently, the prospects for raising new capital without weakening the management's control by the use of a voting trust arrangement do not appear good.

An issue of straight nonvoting common stock would be another theoretically feasible device for raising new capital. Nonvoting common stocks, however, are not currently in vogue. Such an issue would be particularly unsuitable for Polaroid in view of the already complicated capital structure of the company. Moreover, even if a nonvoting common stock could be sold to the public, it is doubtful that a reputable investment banking firm would handle it.

Sale of One or More Lines of Company's Products

A fourth — and entirely feasible — procedure would be for Polaroid to sell out one or more lines of its products to a large firm now in a related field. In place of outright sale, a company owned jointly by Polaroid and another firm might be formed to manufacture one line of Polaroid products. Another alternative would be for Polaroid to forego the manufacture of some of its products in favor of royalty and license fees.

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[1] Seventy-one thousand five hundred shares of common stock were deposited in the Voting Trust. The stock so deposited amounts to 66.8% of the now outstanding common stock. The Voting Trust Agreement gives Mr. Land unlimited voting power over the stock deposited in the Trust and hence over the company so long as the Trust remains in effect. Nominally, there are three voting trustees — Land, Wheelwright, and Julius Silver, the firms' general counsel. Mr. Land, however, has the power to remove either of the other trustees at his discretion, and no action may be taken by the Voting Trust without his approval.

Potential purchasers or licensees of an important line of Polaroid products, however, would consist almost exclusively of large, established firms. Consequently, the effect of a sale or licensing agreement would be to promote a greater degree of industrial concentration and to eliminate a small, independent enterprise from competition with large, established corporations.

Issue of Common Stock

Finally, new capital could be raised—apparently on favorable terms — by issuing common stock. Indeed, judged by the past dividend and earnings record of the company, the common stock is selling at a fantastically high price. No dividends have ever been paid on the common stock and, as previously indicated, large arrearages have been accumulated on the preferred stock. Until 1944 net income available to common stockholders never reached $1.50 a share.[1] Yet in 1944 the stock sold for a time at more than $40 a share, a multiple of nearly thirty times its maximum per share earnings prior to that year. It was quoted in April, 1945, at $49½ a share bid and $51½ a share asked.[2]

A large issue of new stock, however, presumably would have to be sold at a substantial discount from the current market price for small lot sales. The market for the stock, now traded over the counter, is exceedingly thin. As shown in Exhibit 22 (p. 92), the price of the stock has fluctuated violently. For instance, the Dow-Jones index of 30 Industrial Stocks declined from approximately 150 to 110 from the beginning of 1939 to the end of 1941. During the same period the *bid* price of Polaroid stock dropped from nearly $60 a share to $9 a share. By August, 1944, the Dow-Jones index had rallied by about 33% to 147. During the same period the bid price of Polaroid rose to $38 a share, an increase of more than 300%. Polaroid stock dropped from $31 to $20 a share during the last two months of 1943, possibly because of tax sales.

With a market as thin and volatile as this, underwriters presumably would demand a wide margin of safety. Furthermore, a *new* issue probably would have to be sold at a lower price than a similar block of the outstanding stock, since a new issue would dilute the percentage participation in future profits of each share of common stock. Finally, the net return to the company from a new issue would be diminished by the registration costs, bankers' commissions, and other expenses of issue.

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[1] Net income available to common stockholders is defined as net income after the deduction of currently accruing dividends on preferred stock.

[2] *Bank and Quotation Record,* May 7, 1945.

With the market price for small lot transactions around $45 to $50 a share, a reasonable estimate of the net return to the company from a large issue of new stock perhaps would be about $30 to $35 a share. Even at this price the terms of the issue appear favorable to the company, judged by its past performance. It is nevertheless possible that the management, with its intimate knowledge of the potentialities of the enterprise, might refuse to accept new capital on these terms.

The major stumbling block to the issue of new common stock, however, would be its effect on the management's control position. Inasmuch as Mr. Land presumably would not be in a position to purchase a large quantity of newly issued stock, such an issue would reduce his percentage control of the existing common stock.

Moreover, the fact that new stock could be issued at $30 to $35 a share at the present time does not necessarily mean that capital can be obtained at this rate when it will be needed two years or so from now. If the stock market should boom or if Polaroid's prospects should suddenly improve, stock might be issued, say in 1946, at considerably more than $35 a share. On the other hand, if business conditions in general should be unsettled during the transition period and if the stock market should slump, Polaroid might not be able to obtain more than, say, $10 to $20 a share by the issue of new common stock. Moreover, events that would increase Polaroid's need for capital — such as delays in the settlement of cancelled contracts or the untimely repeal of the carry-back provisions — would simultaneously decrease the probability that this capital could be obtained at a reasonable price from outside sources.

MANAGEMENT CONTROL

As previously stated, for the duration of the Voting Trust the control of Polaroid Corporation rests firmly in the hands of its founder, Edwin H. Land. Moreover, with the present distribution of stock ownership there is little doubt that Mr. Land will remain in control at the expiration of the Trust. As of March 15, 1943, Mr. Land and his wife owned a block of 41,265 shares of common stock, 37.6% of the outstanding shares.[1] Under ordinary circumstances this holding would be more than adequate to insure control, since the remainder of the stock is rather widely held.

The circumstances surrounding Polaroid, however, are extraordinary. First, the strategic position of the company increases the probability that the control of the present management may be challenged. Polaroid's patents and research talent would be of great value to large firms in several industries. Moreover, Polaroid is sufficiently small so that a dozen or more large firms in related industries could easily buy it out — and might very well be interested in doing so.

Secondly, the management obviously places unusually strong emphasis on the importance of safeguarding its control. All the available evidence indicates that the motivation behind this position is largely noneconomic. Indeed, from a narrow dollar and cents point of view, Mr. Land and his colleagues might easily benefit financially by selling out to a large, established firm. Certainly, Mr. Land would acquire greater financial security by doing so. If acquisition of control were added to the prospective earnings of Polaroid, an industrial purchaser might be willing to bid even more than the present market price for the stock. Mr. Land could probably acquire several million dollars for his personal interest in the firm, enough to assure him a substantial income for life. Moreover, he could undoubtedly command a salary from a large industrial company in excess of the $25,000 now paid him by Polaroid.

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[1] The Lands originally received 90,000 of the 100,000 authorized shares of common stock; 10,000 shares went to Mr. Wheelwright. Kuhn, Loeb & Co. and Schroder Rockefeller & Co., Inc., however, were given 20,250 shares by the Lands as part of the original financing deal. Industrial Developments, Inc., which assisted in the promotion, received $30,791 from the Lands and Wheelwright for services, including certain preorganization expenses. In addition, 2,500 shares of common stock were transferred to Industrial Developments in lieu of additional cash compensation of $2,500. Industrial Developments also purchased Voting Trust Certificates representing 7,500 shares of common stock for $7,500. Nine thousand of these 10,000 shares sold or transferred to Industrial Developments were supplied by the Lands. The Lands have also sold an additional 19,485 shares of common stock and 1,125 shares of Class B stock. Part of the proceeds of these sales was used to liquidate certain obligations of Polaroid's predecessor companies assumed by the Lands and Mr. Wheelwright in the financing agreement of August 10, 1937.

Why, then, does Mr. Land continue to invest a large percentage of his personal assets in a speculative endeavor such as Polaroid? The answer is simply that his primary motivation is not monetary. Rather, his driving interest is in scientific research. Mr. Land organized a business enterprise in preference to withdrawing to the shelter of a university laboratory because of his conviction that his research could be carried on more effectively through a profitable business organization. A fundamental article of faith in the Polaroid creed is that over the long run basic scientific research can be profitably carried on by a vigorous and talented business enterprise. Consequently, Polaroid has repeatedly invested funds in research — often remotely related to its principal business — where the apparent prospects of commercial profit in the foreseeable future were slight, but where the research was considered scientifically or socially important. The synthesis of quinine is an instance in point; even though this research represented a brilliant scientific achievement and may have substantial military importance, Polaroid is unlikely to benefit dollarwise from this particular investment. Over the years, however, Polaroid is convinced that its all-out research program will produce a sufficiently large number of commercially valuable developments to justify the amounts so spent, even from a narrow financial point of view.

No arbitrary percentage of stock ownership can be set below which Mr. Land's control would be in serious jeopardy. In view of the strategic position of the company, however, the Polaroid management cannot rely too heavily on the inertia of minority stockholders as a means of retaining control. Nevertheless, substantial amounts of new capital could be raised without drastically lowering Mr. Land's percentage ownership. For instance, 30,550 shares could be issued without reducing the ownership of Mr. Land and his wife to below 30%. At $30 a share, an issue of this size would yield nearly $1 million. Slightly over $1.7 million could be acquired by selling 58,060 shares at $30 a share while leaving the Lands a 25% ownership.

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